Armstrong FLOORS

WALLS AND COUNTER TOPS

TECHNICAL DATA

1959

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Armstrong FLOORS

WALLS AND COUNTER TOPS

TECHNICAL DATA

1959

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SECTION ONE–Technical Data

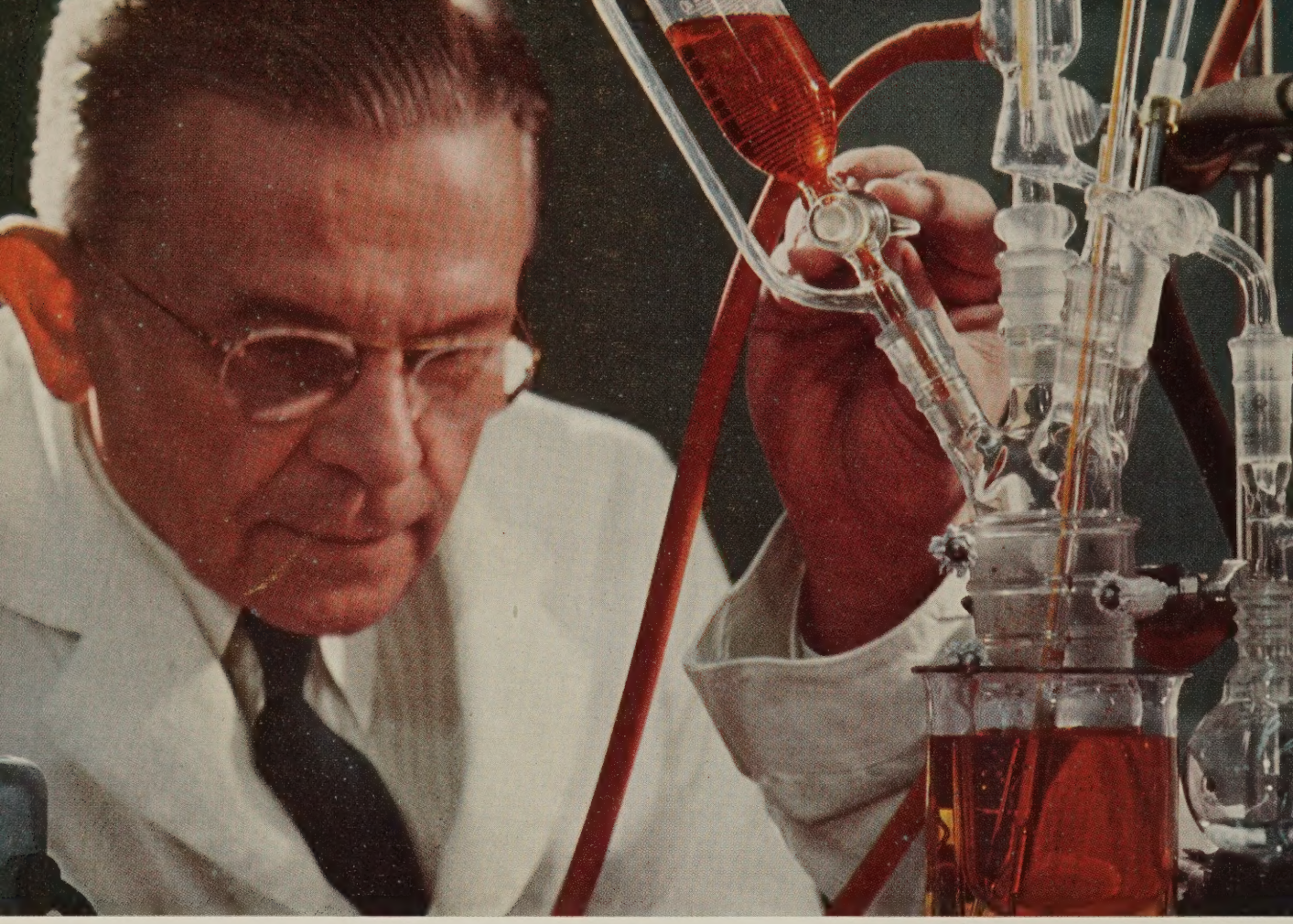
SECTION TWO–Colors and Stylings

Armstrong CORK COMPANY FLOOR DIVISION, LANCASTER, PENNSYLVANIA

BOOK OF FL
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FIFTY YEARS OORING IENCE

1909
1959





FIFTY
YEARS
OF
FLOORING
EXPERIENCE

RESEARCH

The variety of Armstrong floors offered for selection today is the result of the needs of modern living and changing trends in building. Working with architects, designers, and builders, the staff of the Armstrong Research and Development Center is constantly striving to solve new and complex flooring problems. The joint efforts of these groups have been responsible for the improvements in existing flooring materials as well as for the development of many new types of Armstrong resilient floors.

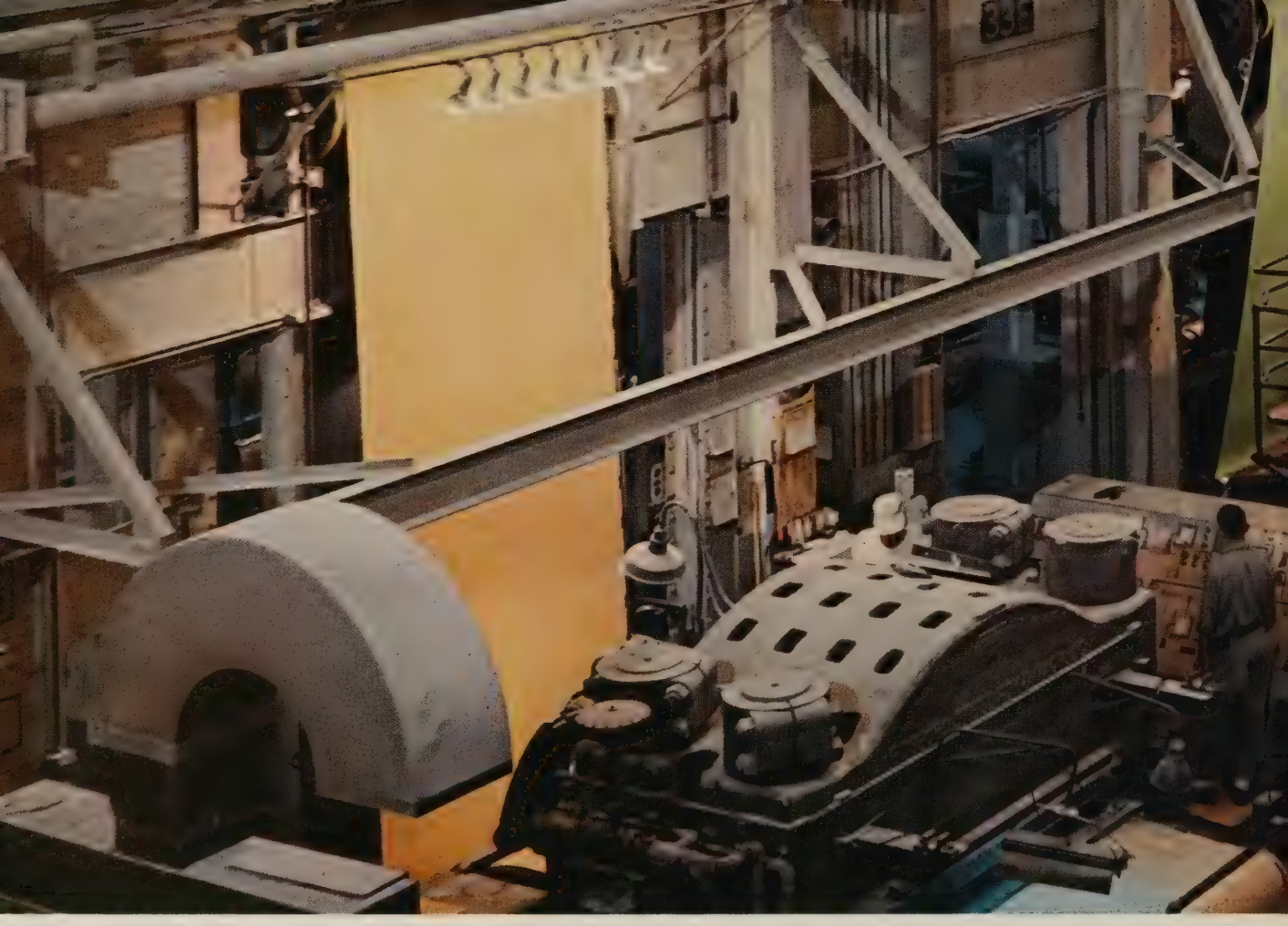


Throughout the years, Armstrong stylists have worked constantly with color and design in the development of resilient floors to keep pace with changing architecture and decoration. Testifying to the importance Armstrong places on styling is the complete new Styling Center recently built at Lancaster. Here, a large staff of artists and designers specialize in current and advance styling to keep Armstrong the modern fashion in floors, today and in the years to come.

FIFTY YEARS OF FLOORING EXPERIENCE

STYLING





MANU



FIFTY YEARS OF FLOORING EXPERIENCE

FACTURING

Armstrong's progressive growth during its fifty years in the flooring industry would have been impossible without capable men and women in the factories to convert research advances into quality products. Modern electronic controls in the hands of skilled workers assure precision manufacture of Armstrong products. In the future, the challenge of atomic power holds promise of even greater strides in the production of Armstrong resilient floors to meet the varied requirements of modern construction.

ARMSTRONG SERVICES TO ARCHITECTS

Armstrong Cork Company makes all types of resilient floors for all types of interiors. Almost any flooring requirement can be met with one or more of the floors in the Armstrong Line. As a result, we can offer unbiased recommendations on any flooring problem. Our main interest is, of course, to aid you in making a sound flooring selection. For complete information or recommendations on specific job requirements, contact the nearest Armstrong District Office or write to Armstrong Cork Company, Floor Division, Lancaster, Pa.

Architectural-Builder Consultants, a special group of Armstrong representatives, have been assigned the exclusive responsibility of working directly with architects, decorators, and interior designers on flooring problems. Armstrong Sales Representatives, an organization of over 125 men, also devote much of their time to such consultations. Together, these two groups represent an exceptional fund of experience and training in resilient flooring. Architectural-Builder Consultants and Armstrong Sales Representatives are located throughout the country and will gladly consult on any flooring problem and make specific recommendations for individual jobs.

Complete Specifications on the installation of any Armstrong Floor, Wall, and Counter-Top Materials are available upon request. For abridged specifications, see pages 55–60.

Armstrong Bureau of Interior Decoration, staffed with experienced interior designers, will, without obligation, suggest to you or your color consultant designs for floors, walls, and ceilings with complete room color schemes if desired.

ARMSTRONG FLOOR DIVISION OFFICES

Atlanta 8.....727 W. Peachtree Street, N. E.

Baltimore 2.....2612 Maryland Ave.

Boston.....200 First Ave.
New England Industrial Center
Needham Hts. 94, Mass.

Buffalo 23.....1945 Sheridan Drive

Chicago 54.....13–136 The Merchandise Mart

Cincinnati 37.....1057 Meta Drive

Cleveland 14.....2975 Superior Avenue

Dallas 19.....2727 Oak Lawn Avenue

Denver 4.....35 West Fifth Avenue

Detroit 26.....Free Press Building
321 Lafayette Avenue, West

High Point....Southern Furniture Exposition Building

Kansas City 8.....500 West 26th Street

Los Angeles 22.....5983 East Smithway Street

Minneapolis 6.....4539 Hiawatha Avenue

New Orleans 19.....3308 Tulane Avenue

New York 16.....295 Fifth Avenue

Philadelphia 2.....Robinson Building
Fifteenth and Chestnut Streets

Pittsburgh 22.....24th Street and Allegheny River

St. Louis 10.....1919 Hampton Avenue

San Francisco 3.....Western Merchandise Mart
1355 Market Street

Seattle 1.....803 Terminal Sales Building
1932 First Avenue

Canada...6911 Decarie Blvd., Montreal 29, Quebec

ARMSTRONG MANUFACTURING PLANTS (Floor Division)

Jackson, Miss......Asphalt Tile, Excelon Tile

Kankakee, Ill......Asphalt Tile, Excelon Tile

Lancaster, Pa......Asphalt Tile, Corlon Sheet Plastics, Excelon Tile, Linoleum, Linotile, Vinyl Plastic Surfacing

Pittsburgh, Pa......Cork Tile, Custom Vinyl Cork Tile

South Braintree, Mass......Custom Corlon Tile, Rubber Tile, Opalesq Tile

South Gate, Cal......Asphalt Tile, Excelon Tile

ARMSTRONG RESEARCH AND DEVELOPMENT CENTER

Lancaster, Pa.

ARMSTRONG BUREAU OF INTERIOR DECORATION

Lancaster, Pa.

Architects, designers, and decorators are invited to visit Armstrong District Offices, Manufacturing Plants, the Research and Development Center, and the Bureau of Interior Decoration. Such visits provide opportunities to discuss flooring requirements and to observe styling and manufacturing methods.



MEMBER

We acknowledge the assistance of the American Institute of Architects in editing the subject matter and form of presentation of this manual.

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Comparative Data on Armstron

Also for Institutional, Civic, Industri

PAGE	TYPE OF FLOOR	ARMSTRONG BRAND AND DESIGN SERIES	GAUGES	BASIC MATERIALS	BACKING MATERIALS	SUBFLOOR APPLICATION (1)
64–74	LINOLEUM	Plain Jaspé Marbelle Textelle Imperial	Heavy (⅛") (.125")	Cork and/or wood flour and oleoresinous compounds	Burlap	A
112	VINYL SHEET FLOORING	Vinyl Corlon: Tessera Series	.090"	Vinyl resins	Hydrocord (asbestos fiber felt)	A-O-B
134	LINOTILE	Standard Designers Series Textured Series	⅛" (.125")	Cork and/or wood flour and oleo-resinous compounds, specially processed	None	A
131	HOMOGE-NEOUS VINYL TILE	Custom Corlon: Plain Burl Imperial Series	⅛" (.125")	Vinyl resins	None	A-O-B
138	HOMOGE-NEOUS VINYL TILE with Translucent Effects	Opalesq Vinyl Tile	⅛" (.125")	Transparent, translucent and/or opaque vinyl resins	None	A-O-B
136	RUBBER TILE	Plain Standard Designers Series	3/16" (.1875") and ⅛" (.125")	Rubber compounds	None	A-O-B
130	CORK TILE	Armstrong Cork Tile	5/16" (.3125"), 3/16" (.1875"), and ⅛" (.125")	Raw cork and resins	None	A-O* (*Under certain conditions)
130	CORK TILE, Vinyl Coated	Custom Vinyl Cork: Natural Driftwood	⅛" (.125")	Raw cork and vinyl plastic resins	None	A-O* (*Under certain conditions)
122	VINYL-ASBESTOS TILE	Excelon: Standard Designers Woodtone Imperial	⅛" (.125")	Vinyl resins and asbestos fibers	None	A-O-B
116	ASPHALT TILE	Standard Woodtone Greaseproof Spatter Corkstyle	⅛" (.125") and 3/16" (.1875")	Resin, asphaltic compounds and asbestos fibers	None	A-O-B
150	VINYL PLASTIC SURFACING	Armstrong Vinyl Plastic Surfacing	.045"	Vinyl resins	Hydrocord (asbestos fiber)	For walls, counter tops, etc.

(1)
A–Above grade
O–On grade
B–Below grade

Selecting precisely the right resilient floor is first a matter of *engineering*. Clients serve their own interests best by permitting the specifier to designate proper *types* of floors with respect to subfloor conditions, traffic requirements, and maintenance costs before color, pattern, and initial costs are considered.

While the third column in the above table lists only Armstrong grades, some of which are exclusive with Armstrong, the second column is representative of the resilient flooring industry

Resilient Floors for Commercial Use

and De Luxe Residential Installations

STATIC LOAD LIMIT PSI (2)	RATING IN ORDER OF RESILIENCE (3)	RELATIVE QUIETNESS	DURABILITY RATING	GREASE RESISTANCE	SURFACE ALKALI RESISTANCE	EASE OF MAINTENANCE	APPROXIMATE INSTALLED PRICE PER SQ. FT.*	FEDERAL SPECIFICATIONS
75	4	4	Excellent	Excellent	Poor	Excellent	55–80 cents 55 cents 60 cents	LLL-L-367
75	4	4	Excellent	Excellent	Excellent	Excellent	90 cents	**
200	5	4	Superior	Excellent	Poor	Superior	90 cents	**
200	2	2	Superior	Superior	Superior	Superior	$1.30 $1.00 $1.30	L-T-751 (GSA-FSS)
200	5	5	Superior	Excellent	Excellent	Superior	$2.50	L-T-751 (GSA-FSS)
200	2	2	Excellent	Good	Good	Good	.85–$1.15	ZZ-T-301A
75	1	1	Excellent	Good	Good	Fair	.65–$1.05	Interim LLL-T-00431a(c) M-NBS
75	3	3	Excellent	Excellent	Excellent	Superior	$1.30	Interim LLL-T-00431a(c) M-NBS
25	6	6	Superior	Excellent	Excellent	Superior	55–65 cents	L-T-751 (GSA-FSS)
25	7	6	Excellent	A, B colors—Poor C, D colors—Fair Greaseproof—Excellent	Excellent	Good	15–65 cents	SS-T-3066 SS-T-307
			Excellent	Excellent	Excellent	Superior	55–75 cents	**

(2) Bearing surface—lbs. per sq. in. or resistance to indentation

(3) Potential underfoot comfort

*More detailed price comparisons are on page 25

**No Federal Specifications yet evolved

because Armstrong manufactures all basic types of resilient floors. Therefore, the above data can be helpful to the specifier in his primary considerations of any manufacturer's products. After selecting *type*, refer to Section Two of this book and the catalogues of other manufacturers for pattern and color selection.

Resilient floors of lower cost for residential and other lighter duty are compared and tabulated on the next two pages.

Comparative Data on Armstron

Also for Retail Shops, Smaller Offices, a

PAGE	TYPE OF FLOOR	ARMSTRONG BRAND AND DESIGN SERIES	GAUGES	BASIC MATERIALS	BACKING MATERIALS	SUBFLOOR APPLICATIO (2)
102–112	VINYL SHEET FLOORING	Vinyl Corlon (1): Futuresq	.070″	Vinyl resins	Armofelt (resin-saturated rag fiber)	A
		Granette	.070″			
		Mosaic	.070″			
		Terrazzo	.070″			
		Decoresq	.070″			
		Decoresq	.0625″		Hydrocord (asbestos fiber)	A-O-B
86	EMBOSSED INLAID LINOLEUM	Embossed	Standard (.090″)	Cork and/or wood flour and oleoresinous compounds	Armofelt (resin-saturated rag fiber)	A
79–82	INLAID LINOLEUM Smooth Surface	Craftline	Standard (.090″)	Cork and/or wood flour and oleoresinous compounds	Armofelt (resin-saturated rag fiber)	A
		Spatter				
64–74	CALENDERED LINOLEUM	Plain (1)	Standard (.090″)	Cork and/or wood flour and oleoresinous compounds	Armofelt (resin-saturated rag fiber)	A
		Marbelle (1)	Standard (.090″) and Service (1/16″ .0625″)			
		Imperial (1)	Standard			
		Decorelle	Standard and (in tile) Service			
130	CORK TILE	Armstrong Cork Tile (1)	1/8″ (.125″) and 3/32″ (.09375″)	Raw cork and resins	None	A-O* (*Under certain conditions)
131	HOMO-GENEOUS VINYL TILE	Custom Corlon: Plain	1/8″ (.125″) and 3/32″ (.09375″)	Vinyl resins	None	A-O-B
		Burl				
		Imperial				
136	RUBBER TILE	Armstrong Rubber Tile	1/8″ (.125″) and 3/16″ (.1875″)	Rubber compounds	None	A-O-B
122	VINYL-ASBESTOS TILE	Excelon: Standard Designers Woodtone Spatter Corkstyle Styletone Metallic Imperial	1/8″ (.125″) and Service (1/16″ .0625″)	Vinyl resins and asbestos fibers	None	A-O-B
116	ASPHALT TILE	Standard (1) Woodtone (1) Spatter Corkstyle Greaseproof (1)	1/8″ (.125″)	Resin, asphaltic compounds and asbestos fibers	None	A-O-B
150	VINYL PLASTIC SURFACING	Armstrong Vinyl Plastic Surfacing	.045″	Vinyl resins	Hydrocord (asbestos fiber)	For walls, counter tops, etc.

(1) Heavier gauge(s) available for de luxe residential use. See pages 14-15

(2)
A-Above grade
O-On grade
B-Below grade

Specifiers for residential and other light construction work serve their clients best by selecting precisely the right type of resilient floors before becoming concerned with color, pattern, and initial costs. As with heavy duty, higher priced commercial floors on the preceding pages, selection is first a matter of *engineering* with respect to subfloor conditions, use requirements and prolonged client satisfaction.

Resilient Floors for Residential Use

Moderate to Light Traffic Installations

STATIC LOAD LIMIT PSI (3)	RATING IN ORDER OF RESILIENCE (4)	RELATIVE QUIETNESS	DURABILITY RATING	GREASE RESISTANCE	SURFACE ALKALI RESISTANCE	EASE OF MAINTE-NANCE	APPROXIMATE INSTALLED PRICE PER SQ. FT.*	FEDERAL SPECIFICA-TIONS
75	4	4	Excellent	Excellent	Excellent	Superior	80 cents 55 cents 60 cents	**
75	4	4	Good	Excellent	Poor	Excellent	45 cents	LLL-F-471
75	4	4	Good	Excellent	Poor	Excellent	45 cents	LLL-F-471
75	4	4	Good	Excellent	Poor	Excellent	40–45 cents 25–35 cents 40 cents 25–35 cents	LLL-F-471
75	1	1	Good	Fair	Fair	Fair	55–65 cents	Interim LLL-T-00431a(c) M-NBS
200	2	2	Superior	Superior	Excellent	Superior	$1.00–$1.30 .90–$1.00 $1.00–$1.30	L-T-751 (GSA-FSS)
200	2	2	Excellent	Good	Good	Good	.85–$1.15	ZZ-T-301A
25	6	6	Superior	Excellent	Excellent	Superior	30–65 cents	L-T-751 (GSA-FSS)
25	7	6	A, B colors—Poor C, D colors—Fair Greaseproof—Excellent	Excellent	Excellent	Good	15–25 cents	SS-T-3066 SS-T-307
			Excellent	Excellent	Excellent	Superior	55–75 cents	**

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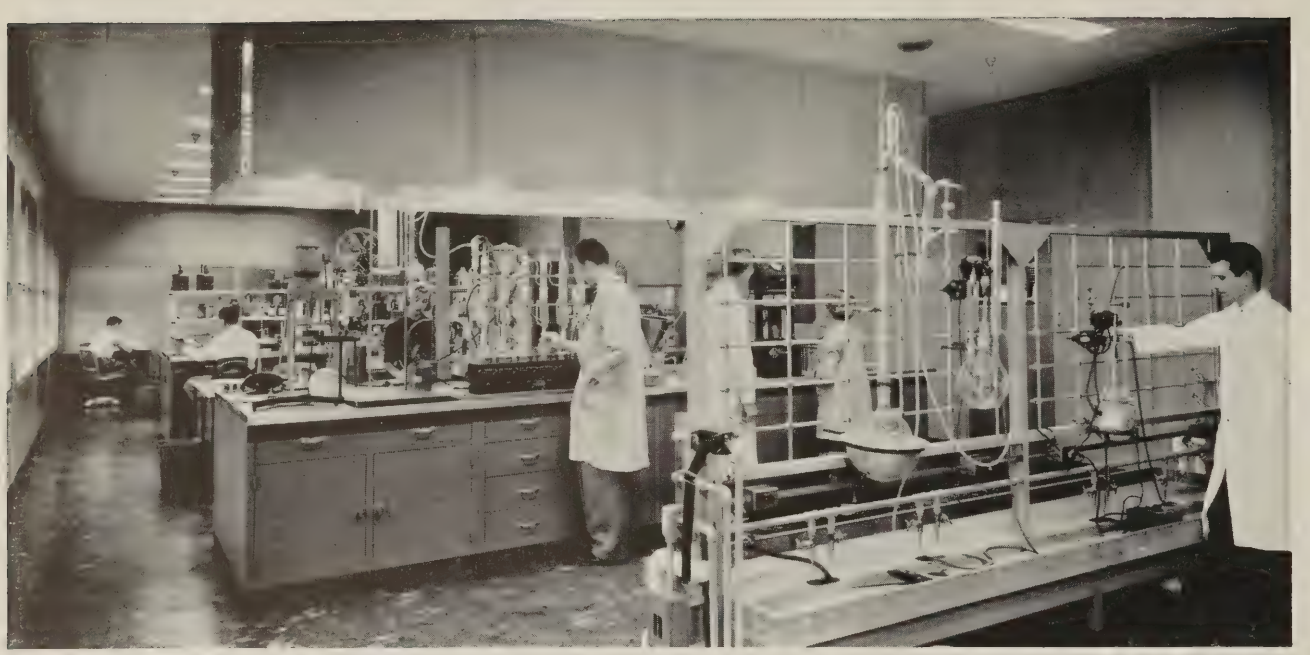
(4)
Potential
underfoot
comfort

*More detailed price comparisons are on page 25

**No Federal Specifications yet evolved

Distribution—Armstrong materials are sold by flooring contractors and floor covering retailers. Names of reliable installers can be obtained from any Armstrong district office.

Prices—Since Armstrong materials are sold and installed by others, it is impossible for Armstrong Cork Company to furnish complete information on the installed cost. Armstrong contractors in your own locality will be glad to furnish quotations without obligation.



The Armstrong Research and Development Center occupies a series of modern structures totaling more than 160,000 square feet of floor space. A staff of over 350 scientists and technicians is constantly occupied with the development of new products and improving and lowering costs on existing products. Facilities embrace physical testing as well as basic and applied research.

New developments in resilient floors

The variety of resilient floors available today is the result of the needs of modern society and changing trends in building. Factors such as lightweight aggregate concrete slabs, concrete subfloors in direct contact with the ground, radiant heating, air conditioning, styling, comfort and quietness underfoot, the amount of money budgeted for floors—all have an important bearing on the flooring selection. Since these conditions and requirements vary widely, there is a need for different floor characteristics to meet individual circumstances.

Today's Floors Are "Engineered"

Modern floors must be engineered to meet these widely varying conditions. Working hand in hand with architects, builders, and designers, the staff of the Armstrong Research and Development Center helps solve new and complex flooring problems. The joint efforts of these groups have been responsible for many new types of resilient floors as well as improvements in existing materials. The primary objective of such research and engineering is to develop maximum service characteristics at minimum costs. The ultimate goal is a universal flooring material combining all physical characteristics for installation over any and all types of subfloors.

Until such a flooring millenium is achieved, research, science, and engineering will continue to develop new and different materials to meet the needs as they arise.

Product Advancements

Two recent results of Armstrong research, that have contributed to new concepts of resilient floors, are Hydrocord Back and Cushion-Eze Underlayment.

Hydrocord Back is a moisture-resistant and alkali-resistant backing applied directly to sheet vinyl Corlon and Vinyl Plastic Surfacing in the manufacturing process. It permits the installation of sheet vinyl flooring direct to concrete subfloors in basements as well as on grade. On Vinyl Plastic Surfacing, the Hydrocord Back is an additional guard against deterioration from moisture in walls and from splashing around sinks and basins.

Cushion-Eze Underlayment is an air-filled foam "padding" for use in place of conventional lining felt under many types of resilient floors. It adds a new concept of underfoot comfort and quietness to resilient floors. Cushion-Eze Underlayment is more fully described on page 27.

Styling Advancements

Of great importance is a new, heavy-duty Armstrong floor which makes use of translucent vinyl in a different and interesting way. Called the Tessera Series in Armstrong Vinyl Corlon, it utilizes the mosaic principle. Colored vinyl chips, exactly simulating the tesserae used in hand-crafted mosaics, are set into a bed of translucent vinyl. The three-dimensional effect of "Tessera" is very

striking. While the chips appear to float, the surface of the floor is, in fact, almost smooth, assuring easy and economical maintenance. It also has excellent dimensional stability. In sum, "Tessera" will give prolonged trouble-free service, comparable to heavy gauge or Battleship Linoleum. And since it comes with the exclusive Armstrong Hydrocord Back, "Tessera" can be used below grade and on grade, as well as above grade.

Opalesq Vinyl Tile is a new prestige floor of unusual beauty. Multicolored and transparent vinyl chips are fused together to give a soft jewel-tone appearance. This translucent quality, suggestive of fine china, also gives added depth and richness to this new product. Opalesq can be specified for all grade floors.

A new high-style inlaid vinyl sheet flooring that combines clear, translucent and tinted vinyl chips with embedded glittering metallic particles has been put into production. Developed by Armstrong research engineers and floor stylists, the new sheet vinyl offering is known as the Futuresq Series in Armstrong Vinyl Plastic Corlon.

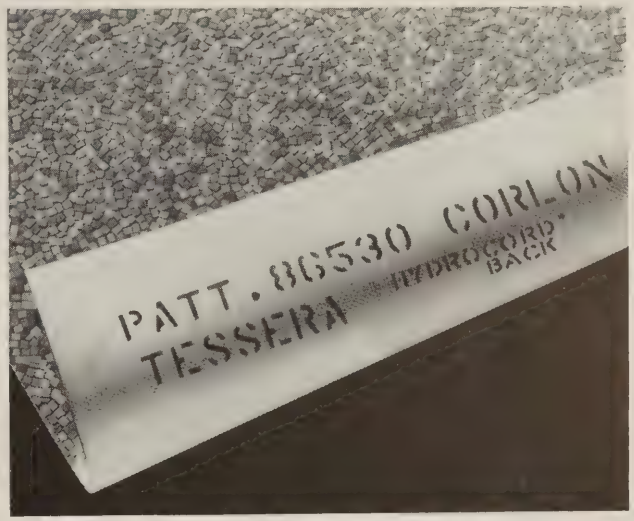
Another unique floor styling newly developed by Armstrong is the Random Driftwood design in Custom Vinyl Cork Tile. This new styling has large shavings of cork spread at random over the face of each tile. A sheet of clear vinyl is fused onto the surface of the tile and into the back as a moisture barrier.

General Advancements

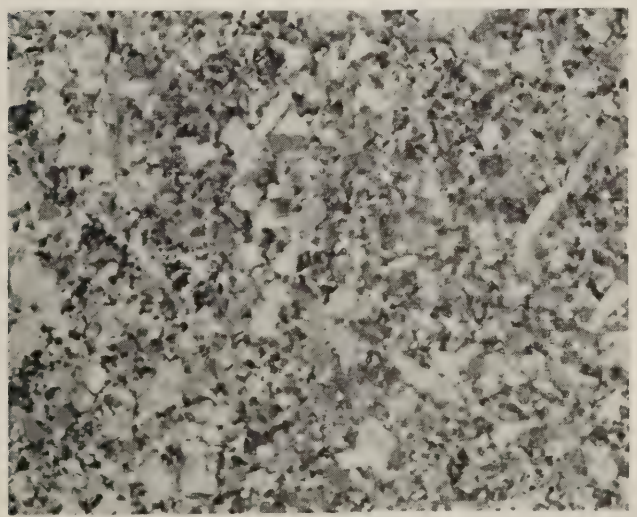
Beyond the development of new products, Armstrong technicians and artists are constantly working to improve the service qualities, installation methods, and aesthetic values of existing materials.



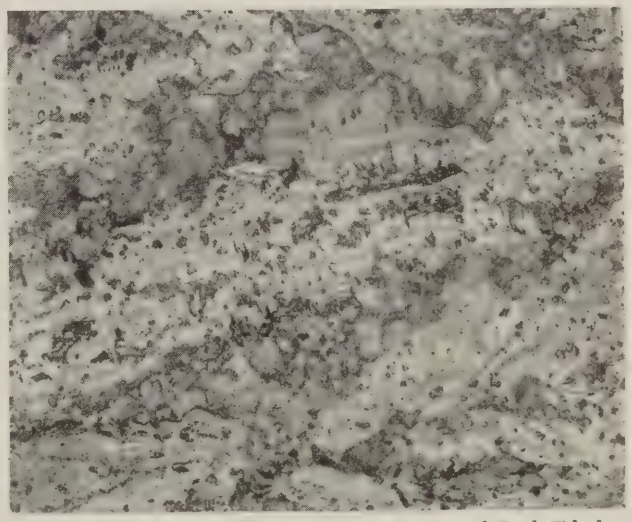
Cushion-Eze Underlayment is a recent development of Armstrong research. It offers a new concept of underfoot comfort and quietness when used with many types of resilient floors.



New Hydrocord Back permits the installation of sheet plastic flooring over on-grade and below-grade concrete subfloors. Pattern shown is the new Tessera Series in Vinyl Corlon.



Gleaming metallic chips are embedded and combined with inlaid particles of clear, translucent, and tinted plastics to create the new Futuresq Series in sheet vinyl plastic Corlon.



The Random Driftwood styling in Custom Vinyl Cork Tile has cork shavings scattered over the face of the tile. A clear vinyl coating fused into the surface of the tile protects its beauty.

A brief guide to basic types of vinyl flooring materials

Architects and specification writers have lately been subjected to a mass of data about vinyl flooring materials. This has tended to cause confusion about the different types of vinyl floors that are available. It is important to understand what these basic types are; where they may be used; why one type costs more than another. To help clear up the confusion, Armstrong—the one company that manufactures all the different types—offers this resume of vinyl floors.* The chart below gives data on costs and recommended uses.

Vinyl-Asbestos Floors Produced in tile, their composition is vinyl resins and asbestos fillers. These are the most widely used of all vinyl floors because of outstanding physical properties and relatively low cost. Exceptional durability and ease of cleaning result in low-maintenance costs. Performance is excellent over suspended subfloors, on-grade slabs and below-grade concrete with conventional low-cost adhesives. Resistance to alkalis and grease is exceptional.

Armstrong's vinyl-asbestos floor, called Excelon Tile, is available in 1/16″ and 1/8″ gauges and a wide choice of colors and designs. In areas requiring high resistance to indentation and superior underfoot comfort and quiet, the following floors are recommended.

Vinyl Sheet Floors These are somewhat more expensive than vinyl-asbestos floors because, except for backing materials, they are formulated entirely of vinyl resins compounds. The high percentage of vinyl makes these floors particularly attractive and colorful and gives them flexibility, more resilience, and very good resistance to wear, grease, and alkalis.

The Armstrong type—Vinyl Corlon—comes in six handsome design series. The new Tessera Series merits special attention. Tessera is a monochromatic, mosaic-styled floor, with vinyl chips laid in a bed of translucent vinyl. Truly a universal floor, it meets the decorative and functional requirements of any interior and offers exceptional service. The exclusive, alkali-resistant Armstrong Hydrocord Back permits Tessera's installation on grade and below grade as well as on suspended floors.

An excellent vinyl floor for "showplace" interiors is Futuresq Corlon. It also is made with clear and translucent vinyl, intermingled with brilliantly colored vinyl chips and metallic particles.

Homogeneous Vinyl Floors Tiles of this type are unbacked and have uniform composition throughout. Typical benefits are superior indentation resistance; almost unlimited application; brilliant colorings; exceptional durability. Due to high raw material and manufacturing costs, this type of floor is by no means inexpensive. Armstrong makes two types of homogeneous vinyl tile. The first, Custom Corlon Tile, is very highly regarded by architects who have used it, being favored where long-term aesthetic and functional considerations are foremost. By a special Armstrong curing process, tiles are given unusually high dimensional stability.

The second Armstrong type is Opalesq Vinyl Tile, designed for interiors where the unusual is a greater consideration than cost. Made with opaque and translucent vinyl, a recently perfected mix gives these vinyl tiles intriguing depth effects and light reflections, exceptional durability, and ease of maintenance.

* Armstrong and other manufacturers make additional products with vinyl components which, for two reasons, are excluded here; either they are merely protected by a thin lamination of clear vinyl or they are usually laid loose as floor *coverings* rather than installed *floors*.

Armstrong Vinyl Floors by Types		Approx. price per sq. ft. installed	Suggested use indicated by shaded areas					
			Above Grade	On Grade	Below Grade	Heavy Traffic	Moderate Traffic	Light Traffic
Vinyl-asbestos Floors								
EXCELON TILE		30¢ - 65¢	■	■	■	■	■	■
Vinyl Sheet Floors								
CORLON	Granette Series	55¢	■					■
	Terrazzo Series	55¢	■					■
	Mosaic Series	55¢	■					■
	Decoresq Series	55¢ - 60¢	■	■	■			■
CORLON	with translucent effects							
	Futuresq Series	80¢	■					■
	Tessera Series	90¢	■	■	■	■	■	■
Homogeneous Vinyl Floors								
CUSTOM CORLON TILE		90¢ - $1.30	■	■	■	■	■	■
OPALESQ TILE with translucent effects		$2.50	■	■	■	■	■	■

Vinyl floors: 7 important characteristics useful to know

All types of vinyl floors have certain common characteristics. The following facts are offered to help familiarize specifiers with these general traits. Armstrong Cork Company can provide such information without partiality because it makes all basic types of vinyl flooring materials. The data in this article may also prove useful in explaining to clients why vinyl floors are specified instead of other, and often less expensive, resilient floors. Such information is exceedingly important in considering long-term cost factors such as maintenance and wear-life.

Here are seven useful facts about vinyl floors:

1 – Unusually wide range of designs available

Vinyl, being thermoplastic, can be processed into particles of almost any shape and made to retain those shapes. As a result, all sorts of design effects can be manufactured with vinyl floors. There are monolithic styles kindred to terrazzos, mosaics, and marbles . . . floors with delicately speckled grainings and large-scale designs . . . effects heretofore unobtainable in other flooring materials. Recently, floors made with translucent and transparent vinyl (Armstrong Opalesq Vinyl Tile and the Tessera Series in Armstrong Vinyl Corlon are two of the latest) have attracted favorable attention. Translucent vinyl gives floors extraordinary depth effects, light refractions, and unique decorative beauty.

2 – Brighter, more permanent colors

The use of practically colorless vinyl as a binder permits pigments to show in superior clarity and brilliance, even to the extent of bright or burnished metallic effects. Expressed conversely, the clear vinyl does not mask or cloud the color pigments. Moreover, the vinyl affords better protection for the pigments than most other resilient flooring binders; hence, greater resistance to the effects of chemicals and other harmful substances.

3 – Can be used over all types of subfloors

It is well known that vinyl-asbestos and homogeneous vinyl tiles can be installed over subfloors on grade and below grade, as well as above grade. The new alkali-resistant Armstrong Hydrocord Back permits, for the first time ever, the use of sheet flooring, six feet wide, on and below grade as well as above grade.

4 – Superior surface resistance permits specialized applications

Vinyl floors provide very good service under a wide variety of severe wearing conditions. While lighter colors are susceptible to staining from some foreign substances, excellent resistance to grease, alkalis, detergents, some solvents, some acids and many chemicals makes vinyl floors most suitable for hospitals, schools, cafeterias, commercial and residential kitchens. And Armstrong Custom Corlon Tile—a unique type of homogeneous vinyl flooring—is recommended as the best resilient floor yet developed for chemical laboratories, although not completely impervious to harm.

5 – Ultra-smooth surface and high density ease maintenance

Vinyl flooring materials, except when an embossed or textured face is deliberately sought, have extraordinarily smooth surfaces due to lack of porosity—smoother, in fact, than any other flooring surfaces. This makes cleaning, waxing, and day-to-day upkeep easy and economical. And because vinyl floors provide superior surface resistance, special cleaning jobs are seldom necessary.

6 – Durability and indentation resistance also excellent

Vinyl is, by nature, exceptionally tough and high in tensile strength. So vinyl flooring materials give superior service under very exacting daily wear. And most types have very good resistance to indentation from furniture and other moving and static loads. This is a valuable asset for any interior and, combined with the higher abrasion resistance vinyl floors provide, is especially important for heavy-traffic areas.

7 – What about costs?

"Raw" vinyl itself is expensive, so a general rule of thumb is that the higher the vinyl content the higher the price of the flooring material. However, other factors contribute importantly to cost, such as slower, more complicated manufacturing processes to achieve dimensional stability and certain style effects. As an example of cost range: Armstrong Excelon Tile costs as little as 30¢ per sq. ft. installed; Armstrong Opalesq Vinyl Tile costs up to $2.50 per sq. ft. installed. Other Armstrong vinyl floors are between these two extremes, as detailed on opposite page and page 25.

Obviously, initial cost is not necessarily the primary consideration for all jobs. True, the lowest priced commodity may provide the service desired in many interiors. In others, the highest priced may be less expensive in the long run. Armstrong Architectural-Builder Consultants will be glad to help you choose the one (be it vinyl or another type of resilient floor) that is most compatible with the short and long range requirements of each job.

Gauges of resilient flooring

The most obvious reason for concern with the gauge or thickness of a resilient floor is its effect on the length of service it will give. Once this was the most important factor in the selection of flooring. Until a few years ago, American gauges closely followed the thicknesses of those made in Europe. There, construction was expected to last for centuries, and demanded the thickest gauges that could be produced, with little or no heed to the cost of such materials. "Battleship" linoleum, for instance, meant 3/16″ or thicker, and was actually made in both ¼″ (0.250″) and occasionally 8 mm. (0.315″) to special order.

Today, as a result of long experience in the resilient flooring industry, modern manufacturing methods and improved materials have been developed, imparting vastly superior qualities of durability—and far greater economy. Gauges which were once regarded as being too "light" for satisfactory performance now appear more than adequate for most residential and commercial areas. Furthermore, with the modern trend toward frequent redecoration, durability has become a somewhat less important consideration, as flooring is often replaced to create a change in interior decoration when far from worn-out.

There are, however, other properties of resilient flooring that are affected by its gauge . . . notably appearance and comfort. The thicker the gauge, the better the resilient floor hides subfloor irregularities, and the better the appearance. The floor's comfort value and quietness also increase with the gauge.

Resilient Tiles

In the case of homogeneous, unbacked tile floors, gauges exceeding ⅛″ are seldom used except in commercial installations where maintenance and traffic conditions are extremely severe. In any flooring installation, of course, it is necessary to take into consideration factors other than gauge. In choosing a flooring material, the proper *composition* for the type of service it will undergo must be decided *first*. Then the gauge of that material is considered. From the point of view of durability, the thinner gauges of the chosen composition will meet most requirements where the amount of maintenance is expected to be reasonable. But if quietness and comfort are of major importance, thicker gauges should be chosen.

For locations where poor maintenance or severe traffic conditions are involved, the thickest available gauge in the correct flooring material should be chosen. There are some compositions of tile such as Linotile, in which only one "all-purpose" gauge is available. Here it is safe to assume that the nature of the tile makes it applicable over a broad range of conditions in the type of service for which it was designed.

Linoleum and Sheet Plastic Floors

Development of backing materials. Backings were originally used on resilient floors merely as a carrier to support the flooring materials during processing. Now they make important contributions to the flooring by adding even greater resilience and comfort. Recent developments include special felts such as Armstrong Armofelt. This backing material, saturated with resins, gives very superior performance.

Hydrocord is another new backing development. It is a new water-resistant backing available on certain stylings of sheet Corlon. A highly flexible, inert composition, Hydrocord is unaffected by alkaline moisture, thus making possible for the first time the installation of resilient sheet flooring over concrete subfloors in direct contact with the ground in basements as well as on grade-level concrete slabs.

The gauge of the resilient flooring material cannot be considered without reference to both the composition of the flooring material and its backing. Some of the newer resilient floors in their thinner gauges provide durability equal to or better than that supplied by thicker gauges of the more traditional materials. This is due to the superiority of their compositions as well as newly developed synthetic binders.

Selection of gauge. In choosing linoleum, Service and Standard gauges should be used only in areas of light traffic, or where initial cost dominates considerations of durability. Heavy gauge linoleum should be used for most commercial installations, since such floors are subjected to concentrated traffic.

The durability of the new plastic compositions permits plastic flooring materials to be manufactured in thinner gauges with serviceability equal to that of linoleum in heavier gauges. For example, the thinner gauges of Armstrong Corlon sheet plastic flooring can be regarded as equal to Standard gauge linoleum.

The gauge and type of backing of resilient flooring affect its "comfort value." For a comparison of this quality, as it applies to various types of resilient floors, see page 26.

Suggested resilient floor gauges for commercial (including institutional), residential, and industrial installations

Material	Over-all Gauge (SG = Service Gauge)	Wear Layer Thickness	Suggested use indicated by colored blocks			
			Severe Commercial	Commercial	Light Commercial	Residential
ASPHALT TILE						
Standard and Greaseproof	3/16"	3/16"	■	■	■	■
Standard and Woodtone	1/8"	1/8"		■	■	■
Spatter	1/8"	1/8"			■	■
Corkstyle	1/8"	1/8"				■
EXCELON (Vinyl Asbestos) TILE						
Standard	1/8"	1/8"	■	■	■	■
	S.G.	1/16"			■	■
Imperial	1/8"	1/8"	■	■	■	■
	3/32"	3/32"			■	■
Designers Series	1/8"	1/8"		■	■	■
	S.G.	1/16"			■	■
Woodtone	1/8"	1/8"		■	■	■
	S.G.	1/16"			■	■
Spatter	S.G.	1/16"				■
Corkstyle	S.G.	1/16"				■
Styletone	S.G.	1/16"				■
Metallic Series	3/32"	3/32"			■	■
	S.G.	1/16"				■
CUSTOM CORLON (Homogeneous Vinyl) TILE	1/8"	1/8"	■	■	■	■
	3/32"	3/32"		■	■	■
OPALESQ (Homogeneous Vinyl) TILE	1/8"	1/8"	■	■	■	■
RUBBER TILE	3/16"	3/16"	■	■	■	■
	1/8"	1/8"		■	■	■
LINOTILE	1/8"	1/8"	■	■	■	■
CORK TILE	5/16"	5/16"	■	■	■	■
	3/16"	3/16"		■	■	■
	1/8"	1/8"				■
	3/32"	3/32"				■
CUSTOM VINYL CORK TILE	1/8"	1/8"		■	■	■

CORLON (Sheet Vinyl)			Severe Commercial	Commercial	Light Commercial	Residential
Tessera (Hydrocord Back)	.090"	.058"	■	■	■	■
Futuresq (Armofelt Back)	.070"	.030"			■	■
Decoresq (Armofelt Back)	.070"	.030"			■	■
Granette (Armofelt Back)	.070"	.030"			■	■
Decoresq (Hydrocord Back)	.0625"	.030"			■	■
Terrazzo (Armofelt Back)	.070"	.030"			■	■
Mosaic (Armofelt Back)	.070"	.030"			■	■

LINOLEUM			Severe Commercial	Commercial	Light Commercial	Residential
Plain, Heavy Gauge	.125"	.090"	■	■	■	■
Standard Gauge	.090"	.050"			■	■
Jaspe, Heavy Gauge	.125"	.090"		■	■	■
Marbelle, Heavy Gauge	.125"	.090"	■	■	■	■
Standard Gauge	.090"	.050"			■	■
Service Gauge	.0625"	.026"				■
Textelle, Heavy Gauge	.125"	.090"	■	■	■	■
Imperial, Heavy Gauge	.125"	.090"	■	■	■	■
Standard Gauge	.090"	.050"			■	■
Embossed Inlaid, Craftline, & Spatter-Standard Gauge	.090"	.050"			■	■
Decorelle-Sheet and Tile Standard Gauge	.090"	.050"			■	■
Decorelle, Decoray, Parquet Tile-Service Gauge	.0625"	.026"				■

Relative costs of resilient floors

Beyond the service and style variations in the many types of resilient floors, there are also wide differences in costs. They range all the way from the economy flooring materials, such as the "A" colors in asphalt tile and Service gauge linoleum, to the luxury floors of rubber tile, vinyl-plastic Custom Corlon Tile, Custom Vinyl Cork Tile and Opalesq Tile. In addition, costs of resilient floors can vary widely depending upon the design. A floor in a single color or styling laid wall to wall generally is less costly than a complex custom styled floor involving exceptional craftsmanship and extra attention to detail on the job.

As manufacturers of resilient floors, the Armstrong Cork Company cannot safely quote actual installed prices since there are many factors that affect the cost of the floor installation beyond the price of the material. As mentioned above, the floor design alone can have an important bearing on the cost. Other items that must be taken into account include subfloor conditions and labor rates and efficiencies. Such factors vary from one section of the country to another as well as from job to job.

An outright specification for Armstrong materials will still result in competitive bidding from a number of flooring contractors and at the same time give assurance of top quality materials. The invitation to bid should indicate all the items which fall within the scope of the flooring contractor's work in addition to the flooring materials. The flooring contractor's ability and reputation should then be considered in determining the best value.

The approximate price relationship of the different types of resilient flooring materials is shown on the chart on the next page. From this chart it will be seen that asphalt tile and various linoleum tiles are considered the lowest cost resilient floors, with the "A" or darker colors of asphalt tile the most economical and grading up to the brighter "D" colors. Linoleum is next in line followed by Vinyl Corlon sheet material. However, the lighter gauges of linoleum are about equal to the most expensive colors in asphalt tile.

Further up the price scale is Excelon Tile, cork tile in the 3/32″ and ⅛″ gauges, Linotile, rubber tile, Custom Corlon Tile, Custom Vinyl Cork Tile and Opalesq Tile in the order named. Differences in gauge, color, and styling within a resilient flooring line all have a bearing on the cost of the job.

When fairly accurate costs are required prior to receiving bids, it is suggested that you call on your Armstrong representative for assistance. By determining the various factors involved, he can help you work out an approximate cost of the proposed flooring that will be suitable for estimating purposes.



Floor designs can be effective without increasing the cost of the installation. This floor of Armstrong Rubber Tile is an example. Three colors were used in a simple diagonal design.



Elaborate custom styling such as in this floor of Armstrong Textelle Linoleum requires intricate cutting and fitting. The extra labor involved adds to the cost of the installation.

RELATIVE INSTALLED PRICES PER SQUARE FOOT

The following prices are approximate and are intended only to show cost relationship of the various Armstrong Resilient Floor products installed. There are many other important factors contributing to total job cost; such factors as freight expense, labor cost, special installation requirements, local job conditions, size of floor area, etc.

Relative Installed Cost per Sq. Ft.	Asphalt Tile	Excelon (Vinyl-Asbestos) Tile	Linoleum	Vinyl Corlon Sheet Material	Cork Tile Rubber Tile Linotile	Homogeneous Vinyl Tile
.15	B colors-1/8"					
.20	C colors-1/8"					
.25	D colors-1/8" Corkstyle-1/8" Greaseproof-1/8" B colors-3/16"		Marbelle - 1/16" (Service Gauge)			
.30		All Series - 1/16" (Service Gauge) Except Metallic				
.35	C colors-3/16"		Marbelle, Decorelle - .090" (Standard Gauge)			
.40	D colors-3/16"	Metallic - 1/16" (Service Gauge)	Plain in Regular Colors, Imperial - .090" (Standard Gauge)			
.45			Plain in Special Colors Craftline, Spatter Embossed - .090" (Standard Gauge)			
.55		All Series - 1/8" Except Imperial	Jaspe, Plain in Regular Colors - 1/8" (Heavy Gauge)	Granette, Mosaic, Terrazzo, Decoresq with Armofelt Back .070"	Cork Tile - 3/32"	
.60			Imperial, Marbelle, Textelle - 1/8" (Heavy Gauge)	Decoresq with Hydrocord Back - .070"		
.65	Greaseproof-3/16"	Imperial - 1/8"			Cork Tile - 1/8"	
.80			Plain in Special Colors 1/8" (Heavy Gauge)	Futuresq - .070"	Cork Tile - 3/16"	
.85					Rubber Tile - 1/8"	
.90				Tessera - .090"	Linotile - 1/8"	Custom Corlon Tile - Burl Series - 3/32"
1.00						Custom Corlon Tile - Burl Series - 1/8" Plain, Imperial Series - 3/32"
1.05					Cork Tile - 5/16"	
1.15					Rubber Tile - 3/16"	
1.30					Custom Vinyl Cork Tile - 1/8"	Custom Corlon Tile - Plain, Imperial Series - 1/8"
2.50						Opalesq Vinyl Tile - 1/8"

The comparative resiliency of floors

Technically speaking, resilience is a property involving the elastic energy inherent in a material which causes it to regain its original shape when an external load is withdrawn. For practical purposes, however, the resilience of a floor, in its broadest sense, affects more than its properties of recovery from indentation, important though these may be.

For the purposes of this article, resiliency is treated in the more comprehensive sense—as affecting underfoot comfort, and the noise generated by foot traffic, as well as the floor's resistance to or recovery from indentation.

Recovery from indentation. In assessing the resilience of any flooring, the momentary indentations involved in walking are those which are of primary importance. These pressures are quite high—often as much as several thousand pounds per square inch when contact is first made with the floor under the edge of the heel.

The method ordinarily used for evaluating a floor's resilience is the measurement of its recovery from short-term indentations. Such measurements are, of course, of great practical assistance in the selection of suitable resilient flooring — especially for heavy traffic areas. However, the standard testing procedures required by Federal Specifications for different types of flooring materials vary significantly. Therefore, no direct numerical comparison of the short-term indentation characteristics of various types of resilient floors can be made.

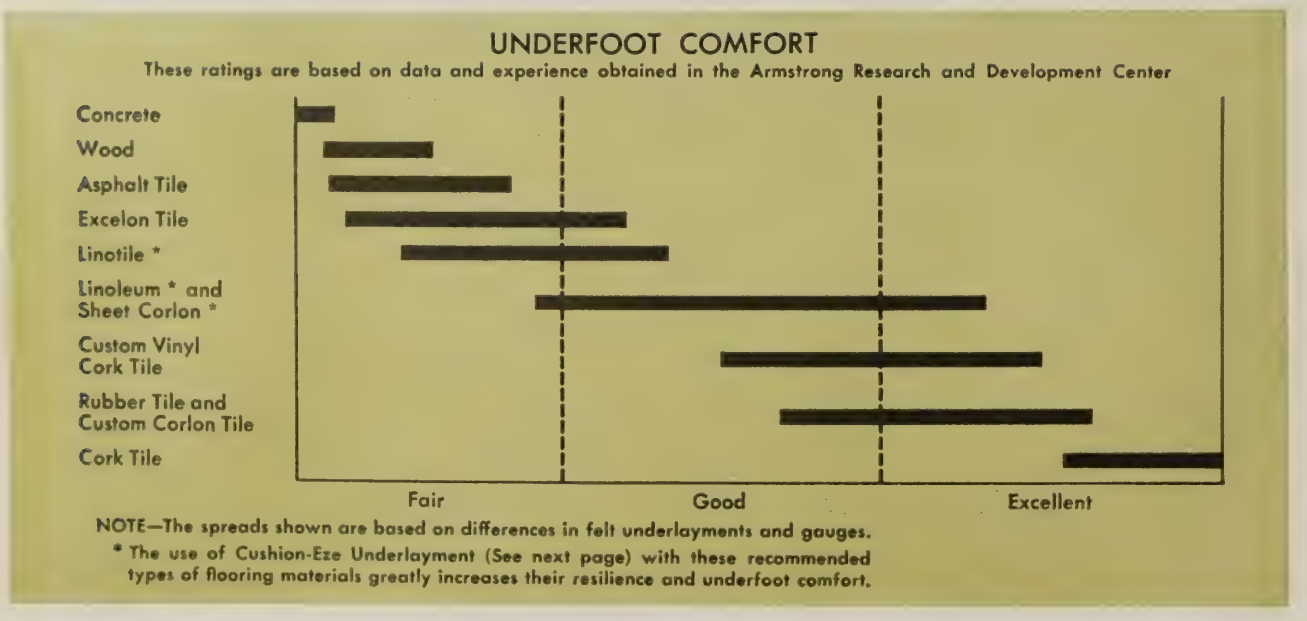
Inability of a floor to recover from the indentation caused by temporary loads will also cause the floor to present an irregular and unsightly surface and to become difficult to keep clean.

Static Load Limits for Armstrong Resilient Floors

Type of Flooring	Load Limit Lbs. per Sq. Inch
Asphalt Tile and Excelon Tile	25
Cork Tile	75
Custom Vinyl Cork Tile	125
Linoleum and Corlon (all forms, all backings)	75
Linotile, Rubber Tile, Custom Corlon Tile, and Opalesq Vinyl Tile	200

The table above indicates the maximum safe load limit before the material becomes permanently indented. These figures are the results of indentation tests conducted by the Armstrong Research Laboratories and are used as a basis for computing the area of bearing surface of Armstrong Furniture Rests. See page 47 for recommendation of furniture rests.

Underfoot comfort. While this is an important consideration in the selection of floors, it becomes a vital factor in the many areas where prolonged periods of walking or standing tend to cause fatigue. Retail stores, hospital corridors, restaurants, and residential kitchens are obvious examples of types of locations where the efficiency of people may be seriously affected by comfort underfoot—and where the choice of the right floor may help considerably to reduce fatigue and increase efficiency. The chart below has been prepared by the Armstrong Research and Development Center to compare the relative "comfort" of resilient floors. This chart is relative rather than absolute, since underfoot comfort is affected by factors other than the composition of the floor itself—such as the underlayment and adhesive used.



Quietness. The reduction of sound from floor traffic is also important. The impact of footsteps on hard floors is a common source of annoyance—and in areas such as corridors, where the sound tends to reverberate through adjoining rooms, impact noise can become a very serious problem.

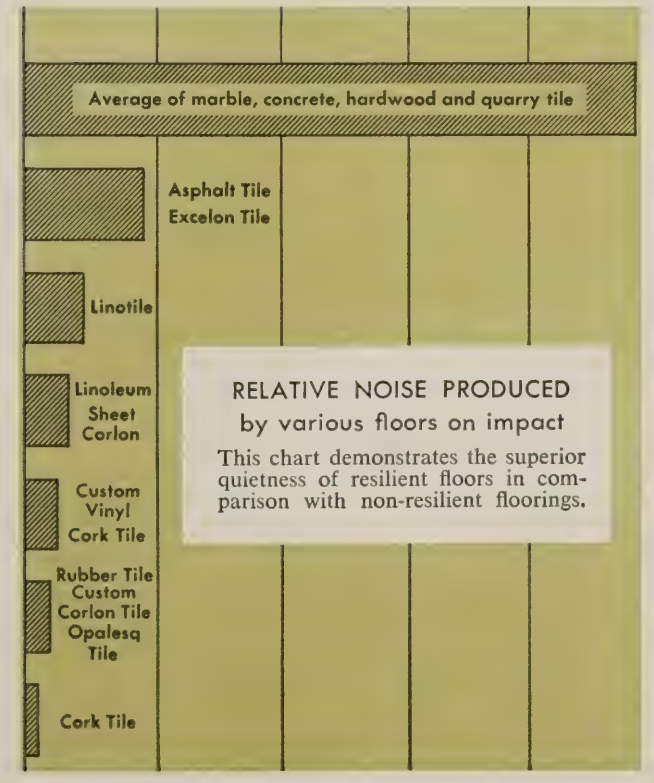
Resilient floors, because of their composition, give under the impact of footsteps, dropped objects, and rolling wheels. This cushioning effect actively reduces traffic noise. All types of resilient floors rate well as "low noise producers" in comparison with wood, concrete, or marble. Their relative noise-on-impact qualities are shown below. It should be remembered that, while resilient floors will soften the sound of foot traffic, they will not appreciably subdue noise originating from other sources such as the clatter of typewriters, kitchenware, and conversation. The use of Armstrong Cushion-Eze Underlayment tends to reduce the transmission of the noise of footsteps through the floor and ceiling to the rooms below.

Cushion-Eze Underlayment

A new development of Armstrong research brings new underfoot comfort and quietness to many types of resilient floors. Called Cushion-Eze Underlayment, this new Armstrong lining material consists of a cushioning layer of air-filled foam fused to a topping of felt. It provides a cushion that absorbs the impact of footsteps and reduces the sound of rolling equipment and dropped objects. In residential and other light construction, Cushion-Eze Underlayment also reduces noise transmitted to areas below. Cushion-Eze Underlayment can be specified for use on all types of suspended floors with linoleum, sheet vinyl Corlon and Linotile. It is not recommended for on- or below-grade floors nor for use under asphalt tile, vinyl asbestos tile, homogeneous vinyl tile, rubber tile, cork tile, or plastic sheet material heavier than .080".



Because it compensates for minor surface irregularities, Cushion-Eze Underlayment can go down over existing resilient floor which is merely stained or worn.



The foam construction of Cushion-Eze Underlayment absorbs the movement of the boards in wood subfloors and tends to conceal minor irregularities in the subfloor. It takes the place of conventional lining felt. No special adhesives are required for the installation of Armstrong Underlayment (see chart, page 45).

Simplifies maintenance. Because Cushion-Eze Underlayment allows the flooring surface to "give" gently under impact, it minimizes the possibility of dirt and grit being ground into the floor. Thus, resilient flooring installed over Cushion-Eze Underlayment is easier to clean and more resistant to scratches and marring than similar floors installed direct or over lining felt.

Simplifies remodeling. Cushion-Eze Underlayment can be installed right over existing suspended resilient floors, except asphalt tile and vinyl-asbestos tile installed over strip wood subflooring. Thus, it makes replacement of many resilient floors faster and easier than by traditional methods requiring the old flooring to be ripped up, sanding the subfloor or nailing down hardboard.

Grease and alkali resistance of resilient floors

In commercial or residential installations, resilient floors may be subjected to three main sources of contamination from grease and alkalis. Contamination may be momentary, such as spilled grease, solvents, or alkalis, which are promptly wiped up. Such short-time contamination presents no problem if the floor has a coating of wax, the cleaning is thorough, and the grease or alkali has not seeped down between joints or seams in the floor. Of greater problem is contamination that is more prolonged —generally by contact with milder concentrations of oil, grease or alkali from cooking residue, spillage, kitchen vapors, strong cleaners, or improper maintenance. The third usual source of contamination is the alkaline moisture from the earth passing through grade-level and below-grade concrete. The problems encountered under this alkaline moisture condition are described in detail in the section, "Which resilient floor over concrete," pages 36 and 37.

The Armstrong Research and Development Center devotes continuing attention to developing materials with improved grease and alkali resistance for a wide variety of conditions to which floors may be subjected. The objective is to produce flooring materials which will not soften, swell, discolor, or change their physical properties under normal, accidental, or even prolonged contact with grease and alkalis.

Testing

Laboratory tests are performed on resilient flooring materials with three considerations in mind. First, the tests must establish the degree of resistance to grease and alkalis of the various floorings made. Secondly, comparisons must be made of the various grades of each type of flooring. And thirdly, the information arrived at must be applied to the experimental production of new types of resilient flooring, and these, in turn, must be tested.

Although this has been a subject very important to the flooring industry and one on which much work has been done, practically no standard test has been generally accepted in the trade.

There are now, however, a number of accurately controlled testing procedures, in the development of which Armstrong has played a major part. These have given rise to the following uniform terms which can be used as a guide in the choice of a resilient floor.

Grease resistant—flooring for residential use, and tested in vegetable oils.

Greaseproof —flooring for residential and commercial use, and tested in mineral as well as vegetable oils.

Armstrong Testing Procedures

In the Armstrong Research and Development Center, the grease-and-alkali problem has been under study for many years, and several tests have been developed that produce valuable results.

How well laboratory tests conducted in the Armstrong Research and Development Center have correlated with actual behavior in the field is evidenced by the fact that Armstrong has developed a number of flooring materials with good to excellent grease and alkali resistance. However, claims made during the past few years for various "plastic" floorings have accentuated the need for sharper distinctions in testing methods. In fact, some of these tests which Armstrong has used in the past are no longer precise enough to evaluate the grease and alkali resistance of the various grades of plastic-type flooring materials now being offered.

Armstrong Abrasion Tester. The Armstrong Research and Development Center has developed an improved

method of determining grease resistance by using the Armstrong Abrasion Machine. The technique used with this equipment permits a quantitative determination of the grease resistance of the flooring material by measuring the abrasion resistance before and after contamination with grease or oil. For floorings with burlap or felt backing, contamination is measured for the surface only. Homogeneous flooring materials, such as asphalt tile and rubber tile, however, can be totally immersed and then tested by means of the Abrasion Machine.

The Abrasion Machine provides a means of accurately and quantitatively assessing the effects of greases and oils. Because the machine is capable of testing eight samples of different materials at the same time, it supplies useful comparative data.

Immersion testing of Armstrong floorings. Immersion testing procedures for various types of floors measure the effects of prolonged exposure to grease or oils. In these continuing tests, materials are immersed for periods as long as several years while being continually observed for signs of deterioration.

At present Armstrong Linotile and the greaseproof tiles are virtually unaffected by the total immersion tests for grease-oil resistance, and Armstrong Rubber Tile is only slightly softened. Although extremely severe, this test has great value because various materials are equally exposed to grease and oil for long periods of time.

Tests lead to product improvements. Armstrong testing procedures have led to steady improvement of the grease- and oil-resistant properties of various types of Armstrong resilient flooring materials.

Armstrong Rubber Tile is now recommended for domestic kitchens. Both Rubber Tile and Armstrong Custom Corlon Tile may be installed below grade if Armstrong No. S-104 Chemical-Set Waterproof Cement is used, and on grade with No. S-235 Cement or S-104 Chemical-Set Cement (see chart, page 45). Excelon Tile, a vinyl-asbestos tile, has been developed to provide exceptionally high resistance to both grease and alkali. Regular Asphalt Tile has low grease resistance, but is highly resistant to alkali. Greaseproof Asphalt Tile also retains good alkali resistance. Sheet Vinyl Corlon and Custom Corlon Tile (homogeneous vinyl) are exceptionally resistant to the harmful effects of both grease and alkaline solutions. Even more recently, Sheet Vinyl Corlon with Hydrocord Back has been developed to provide a sheet plastic flooring with excellent resistance to alkaline moisture from the earth as well as to surface grease and alkalis.

The qualitative resistance of Armstrong floorings is shown in the accompanying table. These flooring materials should be selected for specific installations according to the degree of surface alkali or grease resistance required.

Grease-alkali resistance chart

SURFACE GREASE RESISTANCE

SURFACE ALKALI RESISTANCE	Poor	Fair	Good	Excellent
Excellent	Regular Asphalt Tile (A & B colors)	Regular Asphalt Tile (C & D colors)		Sheet Vinyl Corlon Custom Corlon Tile Opalesq Vinyl Tile Excelon Vinyl-Asbestos Tile Custom Vinyl Cork Tile
Good			Rubber Tile	Grease-proof Asphalt Tile
Fair		Cork Tile		
Poor				Linoleum Linotile

Light reflectivity

Today, there is a growing awareness on the part of industry, education authorities, hospitals, and other institutions of the effects of the brightness and quality of light. As a consequence, the light reflectivity factor of resilient floors takes on additional importance. This is particularly true in view of the fact that the floor is often the largest single area of decorative color in an interior.

The percentage of incident light reflected by a floor must be adjusted to the fact that the human eye is more sensitive to some colors than to others. A person with normal color vision is most sensitive to a wave length of about 570 millimicrons—a greenish yellow in approximately the middle of the visible spectrum—and sensitivity falls away toward both the red and violet end of the spectrum. The accompanying table of light reflectivity values is therefore weighted to take this eye-sensitivity into account.

In addition to color, gloss also has some effect on light reflectivity—a high gloss will have a lower light reflectance. This is illustrated below.

In Fig. 1, a matte surface reflects light in all directions but, as shown in Fig. 2, a high gloss surface reflects most of the light in the direction of specular reflection and a relatively small amount in the direction in which the light reflectance measurement is made. If this material is viewed at the angle of specular reflection, it will appear very bright, but what will be seen will be a more or less distinct image of the source of illumination combined with light reflected by pigment particles of the material.

Therefore, the colors in a high-gloss waxed and polished floor will appear somewhat darker than the same colors in a material with a matte finish. For example, the black in Custom Corlon Tile 462, Imperial Black, with its high gloss, appears to be much darker than the black in Ebony Asphalt Tile B-905, which has a low gloss.

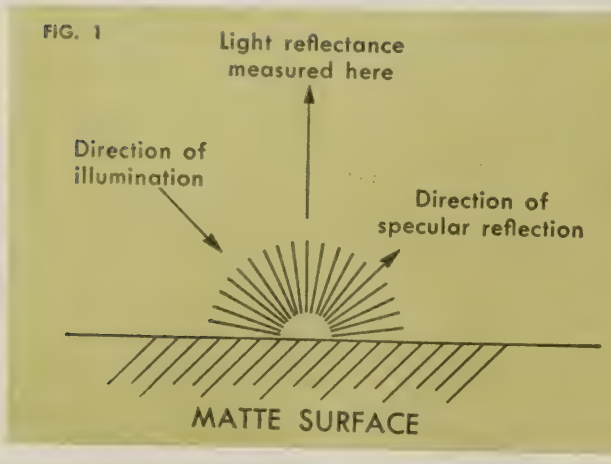
Apart from its effect on the light level of the room, gloss has a considerable influence on the appearance of the finished floor. Very glossy flooring materials tend to show up minor irregularities in the subfloor surfaces. *Very glossy materials, therefore, require careful subfloor inspection and preparation in order to insure the best appearance. Extra maintenance care also is required.*

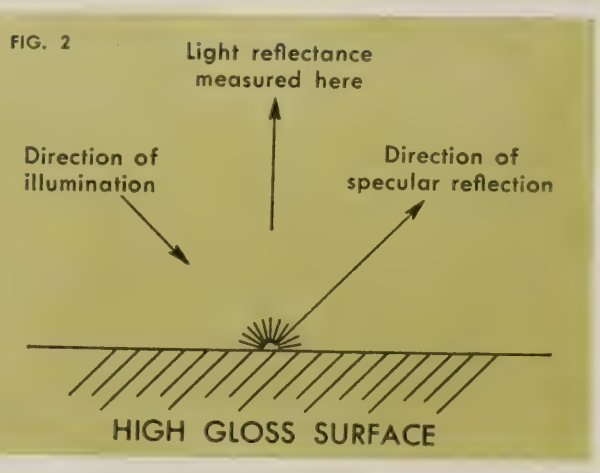
Since the great majority of resilient floors are made of combinations of different colors, the light reflectance figures shown on the chart are average values based on a large area of the pattern. In rooms where the light reflectance of the floor is important, practically any value can be obtained by choosing from the various types of Armstrong resilient floors.

Lighting of schoolrooms is currently a subject of great interest. Much work has been done to reduce fatigue and promote better working conditions for both teachers and pupils. The elimination of glare combined with a balanced brightness level results in more speed and accuracy and provides a cheerful feeling of warmth. Pupils with subnormal vision are helped by adequate lighting and accidents in corridors and stairways are reduced.

Good school lighting depends not only on proper lighting fixtures and the size and location of windows, but also on the reflected brightness of all surfaces in the room. Lighting specialists have arbitrarily selected the working surface (books, papers, etc.) as the reference point. They also have established that this reference point should have a reflectance factor of 70%. For ideal seeing conditions then, the floors and all other major surfaces should have reflectance values not greater than 70% and not less than 22–23%.

These conditions apply not only to schools but also to all places where people work. Proper lighting combined with a proper balance of reflectance levels assures a more relaxed and better satisfied worker.

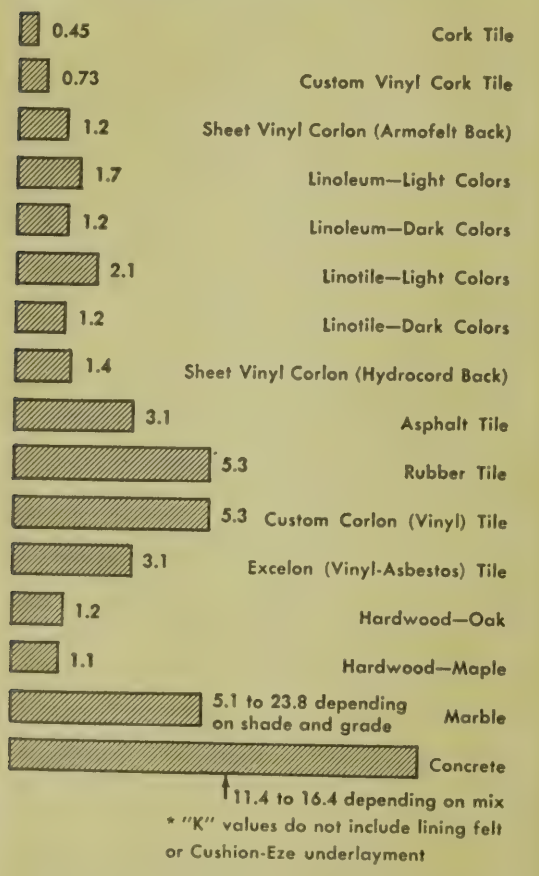




LIGHT REFLECTIVITY VALUES OF ARMSTRONG RESILIENT FLOORS AND WALLS

	Linoleum and Linoleum Tile				Sheet Plastic	Tile				Plastic Tile			Walls
Light Reflectivity in %	Plain No.	Decoray, Decorelle, Jaspe, Parquet No.	Imperial, Marbelle, Textelle No.	Craftline, Embossed, Spatter No.	Vinyl Corlon No.	Asphalt Tile No.	Linotile No.	Rubber Tile No.	Cork Tile and Custom Vinyl Cork Tile No.	Custom Corlon Tile No.	Opalesq Tile No.	Excelon Tile No.	Vinyl Plastic Surfacing No.
70 to 50	23		1556 1602 1608	5029	6180 6184 6200 6202 6212 6214 6219 6512 86535 6809		153			475 480 1400 1407 1415 1460		731 833 861	8601 8602 8604
50 to 45	48	1653	015 1606	5000 5030 5031 5032 5170	6218 6502 6506 6514 6515 6808		156 171 191	609 636 651 653		460 476 481 483 1417 1418	1480 1482 1485	706 712 748	8606
45 to 40		1650 1651 1803 1810	1604	5171 5390 5394 5541 5571 5580 5581	6183 6301 6505 6805	D-904	174			485 1413	1483	303 350 352 735 830 863	8603 8605 8607
40 to 35		1652 1657 1814	030 1607	5160 5180 5181 5512 5540 5600 5610 5621	6181 6204 6205 6300 6510 86531 6800 6803	D-911 D-990	178	664		472 474 1403 1405 1409	1486	301 749 703 767 704 770 705 776 746 832	
35 to 30		1654 1800	09 1553 1600 1601 1605	5025 5026 5028 5160 5353 5510 5513 5590 5611	6187 6216 6508 86533 6802 6806	D-900 C-920 C-921 C-926 D-970 C-989 974	152 154 176 183	632 633		482	1484	300 762 302 771 700 782 701 788 702 831 733 834 736 860 740 865 747 866 761	
30 to 25	24 45	1655 1802 1806 1807 1813 1840	03 014 018 042 1552 1603	5004 5019 5300 5351 5511 5601 5620	6185 6186 6801 6804	C-901 D-953 C-991 C-993	151	610 611 637 656		461 469 1408		734 783 737 798 760 835 779 862 780	
25 to 20		1656 1804 1815 1841	036 1550 1555	5014 5310 5501	6213 86530 86532 86534	C-944 C-947 975	150 155 169 173 185 187	652	410	484 1404 1406		763	
20 to 15		4 13 1801 1817 1842	08 1551 1554	5022 5530 5570 5591	6208 86536	C-902 C-908 C-946 C-961 C-971 C-995	190	615	1005 1006	1416		353 777 711 789 765 797 768 864 769	
15 to 10	22 34 39	16 1843		5352		C-907 D-964 C-997 976	157 172 175 177	635		477	1481	739 786 799	8600
10 to 05	20 25	1816	029		6182 6513 6807	A-200 B-923 B-905 C-924 B-919 B-992 B-922 B-994		665		1401		351 732 752 867	
05 to 00	21 27		021			A-210 B-918	180	613 649 695	411	462 1461			

The effects of radiant heating and air conditioning on resilient flooring



Conductance is the working value desired for calculation of heat flow. To obtain conductance, divide thermal conductivity by thickness of material. Thus, .125" white Linotile, with a "K-90" factor of 2.1, will conduct 16 BTU's/hour/sq. ft./deg. F. Thermal conductivity of resilient flooring materials varies according to type, color, and installation method. Contact the Armstrong Cork Company for specific recommendations when thermal conductivity is of special importance. The temperature difference between the surface of a radiant-heated subfloor and the surface of the resilient floor (except Cork Tile) will average 2.5°. With Cork Tile floors, the difference is from 9° to 15°.

No Harmful Effects from Radiant Heating

In order to be able to provide specific and unbiased recommendations for resilient flooring installations over radiant-heated floors, the Research and Development Center of the Armstrong Cork Company has conducted a series of extensive tests since 1944. Under both experimental and on-the-job conditions, observations have been made of the effects of normal and severe floor temperatures on the hardness, composition, and indentation properties of all Armstrong Resilient Floors.

The results of these tests show that there is virtually no loss of heating efficiency through the use of resilient flooring materials. With floors of asphalt tile, Excelon Tile, linoleum, Linotile, Corlon, and rubber tile, temperature difference between the surface of concrete subfloors, commonly used in radiant heating installations, and the resilient flooring surface, is about 2.5 degrees F. With floors of cork tile, which has a thermal conductivity or "k" factor lower than the other resilient flooring materials, the difference is several degrees F. greater. None of these temperature variations, however, is great enough to result in appreciably increased fuel consumption since the time lag required to bring resilient flooring, of the thicknesses commonly used, to the operating temperature of radiant heating systems is insignificant.

The observations of the Armstrong Research and Development Center have also shown that floor heat, within the limits commonly recommended for radiant heating, has no harmful effect on either the resilient flooring or the adhesives used in installation, provided that the temperature of the floor is kept at a level below 85° F. However, if the subfloor is heated during the installation of the resilient flooring, the working time will be more limited. This is due to the faster setting of the adhesive when it is applied to a warm subfloor.

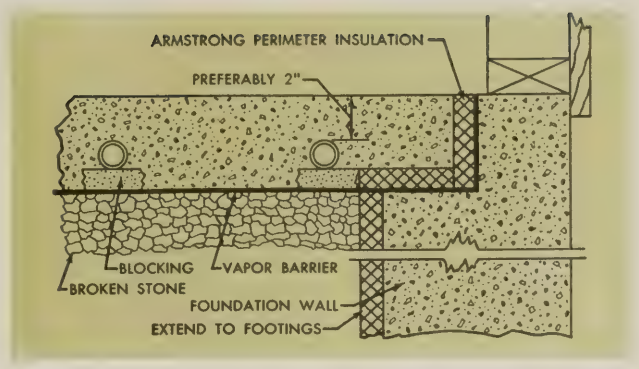
Both laboratory tests and actual field experience indicate that resilient flooring materials can be chosen for radiant-heated subfloors by exactly the same standards as those where other types of heating are employed. Each type of resilient flooring material is installed over a radiant-heated subfloor with the same adhesives and in the same manner as recommended for conventional floors. It should be noted in this connection that the use of radiant heating resilient floors may be installed over concrete slabs in direct contact with the ground. (See pages 36 and 37.)

The American Society of Heating and Air Conditioning Engineers has established 85° F. as the maximum surface temperature for radiant-heated floors. Floor temperatures higher than this are considered uncomfortable underfoot. Because of their thermoplastic quality, asphalt tile and plastic asbestos tiles become slightly softer, and indent more easily, when radiant heating temperatures run above normal. The usual measures used to protect resilient flooring against indentation, described on page 47 of this book, are adequate to prevent indentation in Armstrong Asphalt Tile or Excelon Tile when floor temperatures do not exceed this standard 85° F. maximum.

Certain characteristics of radiant heating systems as recommended by the American Society of Heating and Air Conditioning Engineers have an important bearing on maintaining comfort during cold weather without requiring floor temperatures above 85°. These are adequate perimeter insulation for the slab, appropriate insulation of the building, and reasonably low infiltration. The pipe grid layout should give adequate coverage without excessively high water temperatures, and the spacing of pipes should be such that there is a minimum of temperature variation between the area directly above the pipes and the area above the space between them. Each of these design features has been carefully considered by the Armstrong Research and Development Center in evaluating its test results and when they are used as the basis for radiant heating systems, Armstrong Resilient Floors may be installed with assurance of excellent performance.



This photograph shows the final construction stage of a radiant heating installation. The method of perimeter insulation described in the figure above is being used.



Section through a floor panel using Armstrong Perimeter Insulation. Note that the insulation extends around the edges of the slab in contact with all the exterior foundation walls.

Air Conditioning Creates Moisture Considerations

The increased use of air conditioning, especially year-round air conditioning, is an important factor in choosing resilient flooring and designing the building in which it is to be used. Artificial atmospheric conditions inside a building, particularly when they are in extreme contrast to outside conditions, create moisture in subfloors as well as within the interior. Thus, circumstances peculiar to on-grade and below-grade subfloors are encountered in suspended subfloors of air conditioned buildings.

As explained on page 36, concrete must be allowed to dry adequately before resilient flooring is installed. If the air conditioning system of a new building is turned on too soon, the drying time of a concrete subfloor can be seriously prolonged or "wet" subfloor problems may persist. It is recommended that, before air conditioning is put into operation, the subfloor be allowed to dry (subject to the moisture tests on page 37) and the resilient flooring laid in place for at least 24 hours to allow the adhesive to set up.

But the specifier must look even farther ahead than installation. Air conditioning which lowers the temperature of an interior below adjacent exteriors tends to draw moisture through concrete subfloors and walls. This is especially possible where there is a humid area below the subfloor; e.g., moist subsoil, a humid room or damp plenum chambers. In air conditioned structures, vapor barriers are usually placed in walls and ceilings to prevent condensation, but frequently such moisture barriers are omitted from the floor. Specifiers should provide for a polyethylene sheet or other moisture-impregnable material just below or within the concrete subfloor to prevent moisture from being drawn through it.

If anticipated, the characteristics of resilient flooring and air conditioning are fully reconcilable.

Which resilient floor goes where?

With the large variety of resilient flooring materials now available, some difficulty may be experienced in choosing the right resilient floor for installation over a particular type of subfloor. There are relatively few cases in which only one material will do a specific job. However, consideration of such factors as maintenance, moisture, and service conditions can help guide the selection of a resilient floor—no matter what subfloor is involved.

Moisture Conditions

There are three main types of moisture conditions which should be taken into account in choosing a resilient floor.

Moisture related to concrete subfloors. The moisture content of concrete suspended above grade, on grade, or below grade may seriously affect resilient flooring materials. The installation of resilient floors over concrete is more fully discussed on pages 36 and 37.

Moisture related to wood subfloors. Wood subfloors constructed over sleepers on grade-level and below-grade concrete slabs are susceptible to moisture from the ground. Such a moisture condition usually results in the deterioration of the wood subfloor. Because of this possibility, resilient floors are not recommended for installation over this type of subfloor, not even those resilient floors that are unharmed by alkaline moisture.

Wherever a wood subfloor is constructed over an inadequately ventilated crawl space, there also is danger of moisture damage and consequent warpage to the subfloor, resulting in harm to the resilient floor itself. Crawl spaces should, therefore, be at least 18″ high and cross ventilated. Any of the various Armstrong resilient floors may be installed over wood subfloors in good condition if adequately suspended and ventilated beneath the subfloor.

Surface moisture. Around laundry equipment, lavatory fixtures, and in other areas where excessive water is likely to be spilled on the floor, moisture may find its way through the seams in the floor and attack the adhesive. Where surface moisture is a problem, the floors recommended for on-grade installation—Excelon Tile, Asphalt Tile, Rubber Tile, Custom Corlon Vinyl Tile, Opalesq Vinyl Tile, and Sheet Vinyl Corlon with Hydrocord Back—will give satisfactory service when installed with waterproof adhesives. On suspended floors, sheet flooring materials—Linoleum and Corlon—are least susceptible to the seepage of surface moisture because they can be installed with minimum seams. Naturally, the fewer seams or joints in the floor the less opportunity exists for surface moisture to seep under the flooring.

Service Conditions

Resilient flooring materials should always be selected with service conditions in mind, since the wear a floor receives has great bearing on how long it will retain its utility and beauty. Just as service conditions may range from light wear to constant foot traffic and frequent cleaning—so do resilient flooring products vary in their abilities to withstand harsh treatment.

Light or heavy traffic. In residential installations, wear is not usually an important factor in the choice of a resilient flooring material. In most cases, these floors will be replaced for decorative reasons long before they wear out. Here, most resilient flooring products are satisfactory from the standpoint of wear, and the final choice is often based on price, preference for a design or pattern, or other considerations such as grease resistance. In commercial installations, on the other hand, excessively heavy traffic sometimes makes wear a limiting factor in flooring life. Where this situation exists, the use of heavier gauge products is indicated. Materials that provide the necessary superior wearing characteristics include Armstrong Linotile, Heavy Gauge Linoleum, the 1/8″ gauge of Rubber Tile, Custom Corlon Tile, Asphalt Tile, Excelon Tile, and 3/16″ or 5/16″ Cork Tile. For a more complete discussion of resilient flooring gauges and suggested uses, see pages 22 and 23.

Exposure to strong sunlight. The increasing use of glass curtain walls in commercial structures and the enlargement of window areas in homes represent a severe test of any flooring material. Exposure to strong sunlight may affect the performance and appearance of some types of resilient floors by causing fading, shrinking, brittleness, or chalking. Resilient floors in sheet form

(both Armstrong Linoleum and Corlon) and Linotile are considered most resistant to such deterioration.

Pigments are, of course, the limiting factor in the fade-resistant properties of most resilient flooring materials, but great improvement in color stability has been made in recent years, especially when reds and blues are concerned. Neutral colors such as grays and tans show the best light resistance. Pastel tones, especially yellows, reds, and pinks, give the poorest performance in retaining their colorings under prolonged exposure to the actinic rays of sunlight. Cork Tile has the same tendency as natural wood to fade under strong sunlight.

Maintenance. This is often one of the most important factors in the selection of resilient floors for commercial buildings. Maintenance requirements for all types of resilient floors under various service conditions are discussed fully on pages 46 and 47.

Other Factors in the Choice of Resilient Floors

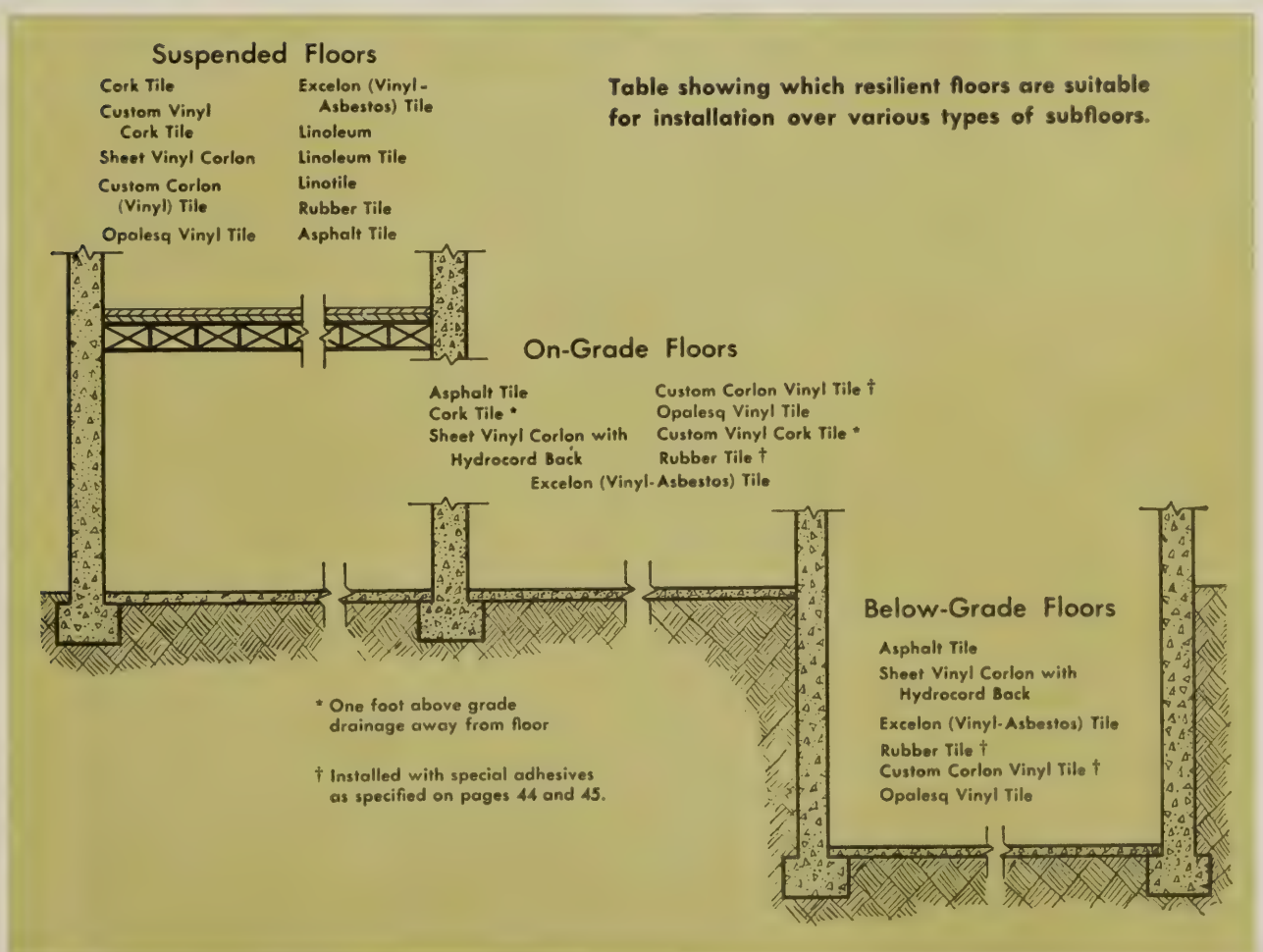
Apart from decorative effects, patterns, and colors, which are largely a matter of individual choice, there are a number of other factors to be considered in selecting a resilient flooring material. Some of the more important are underfoot comfort, noise on impact, resistance to indentation, electrical conductivity of the floor, ease of repairing damage, and the effect of seams.

Resilience and noise on impact. These considerations are discussed in detail on pages 26 and 27.

Repairing damage. Occasionally, an accident may damage a portion of floor so seriously that replacement becomes necessary. All resilient floors are more easily repaired than marble, terrazzo, or concrete. If the damaged area is small, replacement is easier and less expensive with a tile floor than with sheet goods. However, cuts and tears in Armstrong Corlon (sheet form) can be readily heat-sealed with metal foil and an electric iron. Linoleum can be patched with lacquer and linoleum mix.

Seams. The small number of seams and joints in sheet flooring allows few places for accumulations of dirt or corrosive materials. Armstrong Resilient Tile Floors are also easy to maintain. Precision factory cutting of all the various types of resilient tiles assures tight joints and close-fitting edges over the entire floor.

Table showing which resilient floors are suitable for installation over various types of subfloors.



Which resilient floor over concrete?

There are at least two reasons why it is now more important than ever to be aware of the particular problems involved in the use of resilient floors for installation over concrete. First, the use of concrete in direct contact with the ground has vastly increased during the past decade. Second, the resilient flooring industry has developed new types of floors and improved others, especially to provide resistance against the harmful effects of alkaline moisture encountered in on- and below-grade concrete subfloors. This alkaline moisture problem is caused by moisture from the earth working its way up through the concrete. As the moisture rises, it combines with the alkaline salts in the concrete. The result is an alkaline moisture surface condition that can deteriorate the resilient floor or the adhesive, unless proper selection is made. The use of lightweight aggregates in any concrete subfloor—suspended, on-, or below-grade—brings up a number of special problems which should be discussed specifically with the local Armstrong representative; however, the subject is discussed further on pages 38 and 39.

Adequate Drying Time

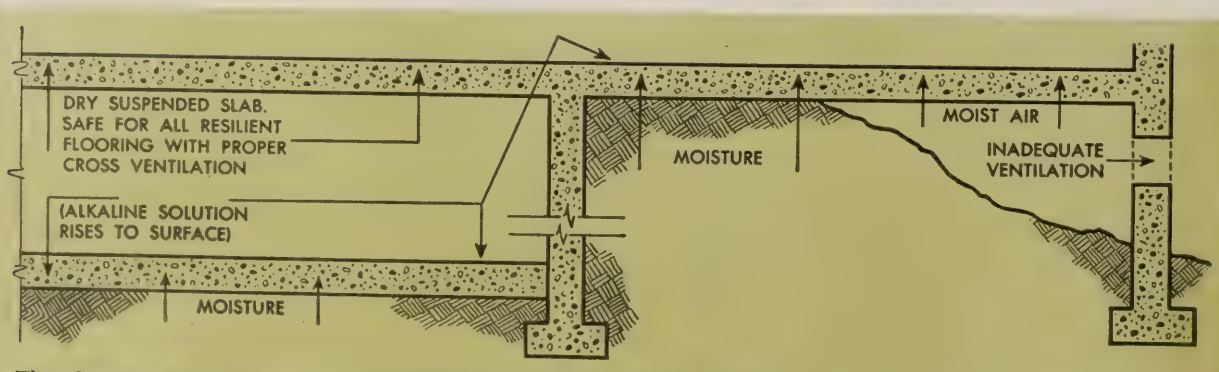
Wherever possible, suspended concrete should be permitted to dry thoroughly for several months. This is especially important when floors susceptible to alkaline moisture are to be installed. In all cases, the concrete subfloor should be tested for moisture before resilient flooring is installed. When suspended concrete is known to be completely dry, any resilient floor may be installed. Tests for moisture are discussed on page opposite.

A factor which frequently leads to poor adhesion in resilient flooring installations over new concrete subfloors is the use of concrete curing compounds. These compounds create conditions similar to those brought about by "breaker" compounds used in hydraulic-lift and tilt-slab construction. (See page 38) While these compounds promote better curing of the concrete by retarding moisture evaporation, they present a problem in the installation of resilient floors. Such concrete must be prepared as described on page 38, prior to resilient flooring installation.

Since the degree of moisture present is the main factor determining the seriousness of the alkaline condition, resilient floors which are suitable for installation over concrete in contact with the ground are usually divided into two categories—those which may safely be installed for use on grade or below grade, and those which are suitable for use on grade but not below grade. As is to be expected, the "moisture problem" in basements is more severe than that encountered at grade level.

Below grade. For years, asphalt tile was the only resilient flooring which could safely be installed in basements, and it still remains an excellent low-cost floor for this purpose. Today, Armstrong Excelon (Vinyl Asbestos) Tile is also recommended for below-grade installations, as are Armstrong Rubber Tile, Custom Corlon Vinyl Tile, Opalesq Vinyl Tile, and Vinyl Corlon with Hydrocord Back when installed with adhesives as specified in the chart on page 45.

In addition to the resilient tile flooring materials recommended for below-grade floors, it is now possible to specify sheet vinyl Corlon with Hydrocord Back for such installations. Neither the vinyl surface nor the Hydrocord Back is harmed by the alkaline moisture in concrete in



This drawing shows how moisture from the ground or from an inadequately ventilated air space below penetrates the concrete slab, bringing alkali to the surface in solution. This solution attacks the oil binders of most resilient flooring materials, causing a chemical change. Linoleum and other resilient flooring materials may be used on dry suspended floors. For grade-level and below-grade floors which contain ground moisture, Asphalt Tile, Excelon Tile, Rubber Tile, Custom Corlon Tile, Opalesq Vinyl Tile, and Sheet Vinyl Corlon with Hydrocord Back may be installed. These resilient flooring materials are not harmed by alkaline moisture. (Cork Tile and Custom Vinyl Cork Tile also may be installed on grade by following the recommendations on page 37 and the adhesives chart on page 45.)

direct contact with the ground. Thus, sheet plastic flooring with Hydrocord Back can now be used satisfactorily in basement areas.

On grade. Armstrong Rubber Tile and Custom Corlon Tile, as well as Sheet Corlon with Hydrocord Back, may be installed under normal on-grade conditions over cured concrete with special adhesives. See Table of Recommended Adhesives, page 45.

Many years of laboratory tests, and trials under actual conditions, have proved that such installations will give satisfactory service for the normal lifetime of the floor.

Armstrong Cork Tile and Custom Vinyl Cork Tile may be installed over grade level concrete slabs with No. S-214 Waterproof Cement (see table, page 45), if the surface of the slab is at least 12 inches above grade, the ground slopes away from the building, and the slab is well cured and dry according to the mat moisture test.

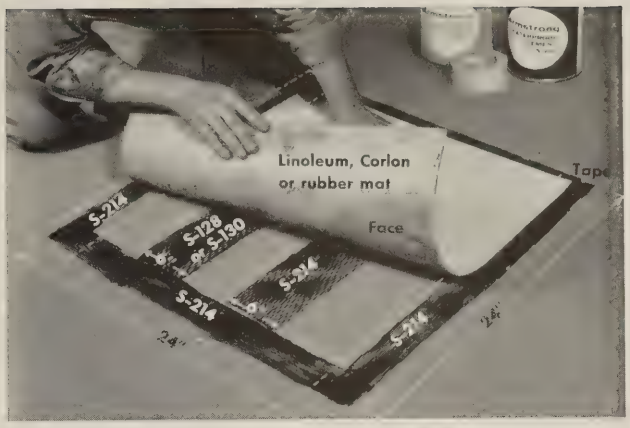
Wet Floor May Appear Dry

It is never safe to assume that a concrete slab will always be dry. Rapid evaporation at the surface will make a concrete floor appear free from moisture but when a resilient flooring is cemented to this surface, evaporation is prevented or slowed and the alkaline solution collects under the flooring material.

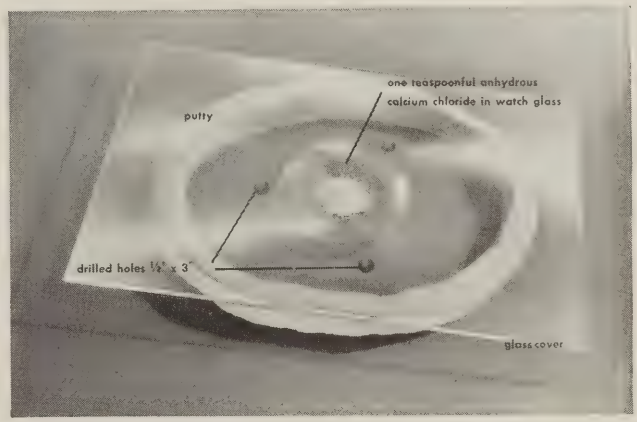
There have been many attempts to find ways to waterproof concrete slabs to make on- and below-grade use of all types of flooring materials possible. To date, the only method which has been proved to work satisfactorily is the membrane method. Even when resilient floorings approved for use without membraning are selected, it is advantageous to include a membrane in slab floors when possible. Individual recommendations for membraning procedures should be discussed with the local Armstrong representative. In any case, it is highly desirable when concrete slabs are in direct contact with the ground, that the slab be placed on a well-drained base.

Regional Conditions

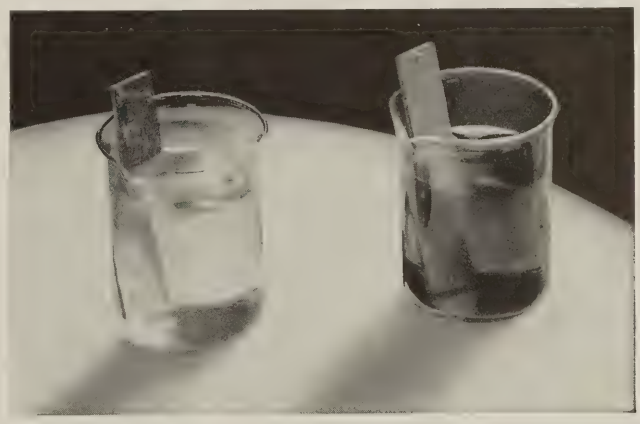
While alkali and moisture present difficulties everywhere, there are a few sections of the country where the aggregates used in compounding concrete contain excessive amounts of alkaline salts. As the subsoil moisture seeps through such concrete subfloors, it dissolves the alkaline salts within the concrete, carrying them to the surface. These salts accumulate underneath resilient flooring or are deposited on the edges of tile as the moisture evaporates. These alkaline deposits build up over a period of time and may gradually force the tiles up from the subfloor or permanently adhere to the surface edges of the tile unless removed promptly. Generally this condition is of a temporary nature and will gradually be eliminated as the continuous passage of moisture dissipates the alkaline salts within the subfloor. An experienced local floor contractor is the best source of useful advice where these special circumstances are encountered.



This mat moisture test shows whether cork tiles, rubber tile, Custom Corlon Tile, Opalesq Tile, or Sheet Corlon with Hydrocord Back can be installed satisfactorily on or below grade. After 72 hours, the S-128 and S-130 adhesives should be partially set up and the S-214 adhesive well set up or dry.



This chemical moisture test should always be made on newly poured suspended concrete floors before the installation of materials that are affected by alkaline solutions. If floor is too moist, calcium chloride is partly dissolved in 24 hours.



Immersion for 2 hours in a 2% solution of sodium hydroxide determines color permanency of pigments in tiles specified for use over below-grade concrete. Beaker at right shows bleeding of colors from pigments that are not alkali resistant.

New construction techniques vs. resilient floor installation

Lift- and Tilt-Slab Construction

Recent improvements in hydraulic lift- and tilt-slab construction techniques have resulted in their increasing popularity with the building trades. However, with the new techniques have come new problems in resilient floor and wall covering installation.

In the lift-slab method of subfloor construction, the concrete for each suspended floor is poured and allowed to harden at ground level before the slab is hydraulically lifted into place to form the upper floor. Before the concrete can be poured, however, a special oily or resinous "breaker" compound is applied to the top surface of each slab to prevent its sticking to the slab above it.

While the "breaker" does prevent the slabs from sticking together, it also prevents resilient flooring materials from adhering satisfactorily to the slab. In most cases, the waxy film of the breaker coating keeps the flooring adhesive from making a firm bond to the slab.

The problem may not be acute in all installations. Job conditions vary. The amount and type of "breaker" used on a slab are just two of the variable factors. While actual job experience has indicated that breaking compounds tend to deteriorate in a short time, reducing the difficulty, the only way to insure a permanent bond for any resilient flooring is to remove the waxy film.

Three removal methods can be used. One method is sanding. This is seldom completely successful because it will not get at film that has soaked into the concrete.

Another method is sandblasting. This will remove the film, but it may also roughen the concrete or pit it if the air pressure is too great or the concrete is too porous.

The best method of removal is grinding the slab with a concrete or terrazzo grinder. Grinding will remove film both on the surface and in the surface pores, and it will cut a new surface on the concrete. In addition, grinding insures a smooth, level floor.

A simple "mat test" should be employed after grinding to check its effectiveness. Lay several test pieces of the resilient flooring to be installed on the concrete bonding them to the slab with the adhesive that will be used when actual installation takes place. After a period of ten to twelve days, check the test installation. If the bond is still strong, the slab is ready for resilient flooring installations.

Lightweight Aggregates

Two problems may be encountered where lightweight aggregate concrete is used in tilt- or lift-slab, as well as conventional, construction. These problems are merely temporary obstacles to the installation of resilient floors.

The first concerns the tendency of lightweight aggregates, hydroscopic in nature, to retain moisture longer than usual drying time and, in fact, to accumulate it from the atmosphere. This, of course, results from the extreme porosity of such concrete mixes and the captured alkaline moisture. This moisture rises to the surface of suspended slab subfloors as it does in concrete which is in direct contact with the ground.

To determine whether such a condition exists, moisture tests as outlined on page 37 should always be made *throughout the entire depth* of the slab to make sure it is sufficiently dry for the safe installation of resilient floors. If excessive amounts of moisture are present, the use of resilient floors must be questioned.



In hydraulic lift-slab construction, concrete slabs are poured directly on top of each other at ground level. The slabs are coated with a "breaker" compound that prevents their sticking together. When resilient floors are to be installed on this type of concrete subfloor, the breaker compound should be removed by grinding to assure proper bonding of the flooring adhesive.

In most cases, the Armstrong adhesives recommended for use with the various Armstrong floors over on-grade slabs should be used over lightweight aggregate concrete. If special conditions call for a different adhesive, consultation with an Armstrong Architectural-Builder Consultant will result in specific recommendations.

Only those floors unaffected by alkaline moisture should be considered for use over lightweight aggregate subfloors. Armstrong Asphalt Tile and Excelon Tile—both low in cost and highly resistant to alkaline moisture—have proven eminently suitable. When a richer appearance outweighs the cost factor, Armstrong Rubber Tile or Custom Corlon Tile, a homogeneous vinyl flooring, is an excellent choice. If conditions are suitable, other Armstrong floors such as sheet vinyl Corlon with Hydrocord Back or Cork Tile may also be used.

The second problem concerning installation of resilient flooring over lightweight aggregate subfloors has to do with their low density. Such density is of great advantage in building construction due to lightness or thermal insulation. Obviously, these properties result from a high degree of porosity or the compounding of light ingredients relatively weaker than the sand, gravel, and stone in conventional concrete. Therefore, a lightweight aggregate strong enough for a prescribed floor load may be too weak *on the surface* for adhesion of resilient flooring; the face may be inherently dusty or crumbly, tending not to hold an adhesive bond.

It is not intended here that the advantages of lightweight aggregates should be foregone for the sake of resilient flooring, nor that resilient flooring need be sacrificed to the peculiarities of lightweight aggregate subfloors. Rather, the two can be reconciled, a view shared by Armstrong Cork Company and the Portland Cement Association, providing the use of resilient flooring is *anticipated*. It appears that lightweight aggregate concrete containing perlite or vermiculite is compounded in densities ranging from 20 to 40 pounds per cubic foot. Since, as described above, density has a direct relation to strength, the surface of this type of lightweight slab is structurally weak—at least, too weak to support the bond of the adhesives for resilient flooring. Therefore, concrete slabs of this type should have a finish or topping at least 1″ thick of standard gravel or stone concrete mix.

Lightweight aggregates consisting of expanded slag, shale or clay and having a density of 60 to 90 pounds per cubic foot are also too light for direct installation of resilient flooring. They too should be topped off with a 1″ finish of standard concrete. When, however, the density ranges from 90 to 120 pounds per cubic foot, the installation of resilient flooring is recommended—providing the surface of the slab is trowelled to a smooth, even finish.

For easy reference, concrete subfloors are tabulated below in three classifications of density: light, medium, and heavy. Special questions about the use of resilient floors on lightweight aggregate concrete should be directed to the Armstrong Architectural-Builder Consultant in the nearest Armstrong District Office—or to the Armstrong factory in Lancaster, Pa.

The architect's or specifier's responsibility with respect to resilient flooring on lightweight aggregate subfloors can be defined as: (1) The specifier must *anticipate* the use of resilient flooring in order to take certain precautions and make special provisions, (2) the specifier must have foreknowledge of expected subfloor drying time in order to schedule building time, and (3) the specifier must have definite information on the structural strength of the subfloor as it pertains to the upper surface.

Density Classification of Concrete Slabs by Weight

Density	Pounds per Cu. Ft.	Type of Aggregate	Recommendations
Light	20 to 40	Expanded perlite, vermiculite, and others	Top with 1″ thickness of standard concrete mix
Medium	60 to 90	Expanded slag, shale, and clay	Top with 1″ thickness of standard concrete mix
	90 to 120	Expanded slag, shale, and clay	Approved for use of resilient flooring if trowelled smooth and even
Heavy	140 to 150	Standard concrete of sand, gravel, or clay	See preceding pages 36 and 37, "Which resilient floor over concrete?"

Preparing old subfloors for resilient flooring

With the continuing importance of modernization projects, resilient flooring materials offer the simplest means of utilizing the previous floor construction. However, no resilient floor is better than the subfloor over which it is installed, and satisfactory results depend to a very great degree on correct preparatory work.

The installation of resilient floors in an old structure usually involves the conversion of what was once a wearing floor into a subfloor. Two main conditions must be met before such a floor forms a satisfactory base for a resilient finish floor. First, it is necessary to have a relatively smooth-surfaced subfloor, free from serious irregularities which would mar the appearance of the finish floor. Second, since nearly all resilient floorings are applied with adhesives, the old floor must be so prepared as to provide a satisfactory bonding surface for the adhesive.

Wood floors. The preparation of old wood floors for the installation of resilient flooring depends on the type of construction:

1. Single wood floors, not tongue-and-groove or tongue-and-groove flooring having more than 4″ face width, should be covered with $^{25}/_{32}$″ flooring or ½″ or heavier DFPA plywood. (For details of both wood and mastic type underlayments see pages 42 and 43.)
2. Single wood floors, tongue-and-groove (not over 4″ face width). Use hardboard, such as Armstrong Temboard Underlayment or ¼″ DFPA plywood, grade C (repaired), D or better. (See pages 42 and 43.)
3. Double wood floors. If boards are 3″ wide or more, proceed as (2), above. If less than 3″, renail loose boards and replace defective or badly worn boards with new material. Fill cracks and holes with plastic wood or snugly fitting wood pieces. Remove surface irregularities, such as cupping, by sanding.

Preparing old wood subfloors

Type of Subfloor		Hardboard	Plywood*
Single wood floor	Tongue-and-Groove	✓	¼″ or heavier
	Not Tongue-and-Groove	Do not use	½″ or heavier
Double wood floor	Strips 3″ or more	✓	¼″ or heavier
	Strips less than 3″	Renail or replace loose boards. Remove surface irregularities.	

Floors too uneven to be sanded smooth: hardboard, or ⅜″ or heavier plywood, or asphalt underlayment.

* See page 43 for recommended types.

Wood floors, which are too uneven to be sanded smooth, should be covered either with hardboard, ⅜″ or heavier plywood, or a mastic-type floor fill made with Armstrong No. S-170 Flormastic.

Old wood floors to which a surface treatment, such as paint or oil, has previously been applied present a special problem. Such treatments tend to prevent the penetration of the adhesive into the wood and deprive it of bonding strength. All traces of oil or paint should be removed by sanding, scraping, or covering with hardboard underlayment or plywood.

When the pores of any wood floor have been opened by sanding, too much penetration of moisture from the adhesive causes cupping of the floor boards. Immediately after sanding, therefore, a sealing compound such as Armstrong S-140 Floor and Wall Size should be applied and allowed to dry before spreading adhesive.

Concrete floors. The problem of securing proper adhesion to concrete subfloors usually arises from dampness, or from dusty, chalky, or flaky concrete surfaces and previous treatments with oils or other solutions. Dampness should be checked as described on page 37. Dusty, chalky, and flaky surfaces can usually be overcome by (1) thorough sweeping with a wire brush to remove all loose particles, followed by priming or sizing, and (2) removal of grease and oils and/or other surface coatings such as paint, varnish, or wax. These can be removed by sanding, paint and varnish remover, blowtorch, acetylene paint burner, or a strong solution of tri-sodium phosphate and water followed by a sealing treatment. When asphalt tile or Excelon Tile is to be installed, the sealer should be Armstrong No. S-80 Asphalt Primer. For all other resilient flooring materials on suspended concrete floors, apply Armstrong S-140 Floor and Wall Size. All cracks, minor holes, and crevices should be filled with Armstrong Crack Filler or a filler of equal quality. If concrete floors are too badly damaged to be repaired by crack fillers, the entire floor may be resurfaced with a fill made from Armstrong S-170 Flormastic, S-105 Underlayment Cement, or a concrete topping. Topping, like new concrete floors, must be fully cured before installing resilient floors.

Special conditions. The above comments cover the most common conditions encountered with subfloors of wood and concrete. Other subfloors such as metal, terrazzo, and magnesite require special treatment which is dependent on individual circumstances. In such cases Armstrong will be glad to offer specific assistance.



To insure a proper bond for the adhesive, all paint must be removed. Because it helps to speed the removal of paint from large areas, the acetylene gas paint burner is often preferred for this type of work. However, machine sanding and chemical paint removers also do the job quickly and effectively.



Grease or oil coatings should be removed with a strong solution of tri-sodium phosphate or alkaline cleanser. Cleaning solutions should be thoroughly rinsed away. Where deep penetration of grease or oil cannot be removed from the subfloor, the installation of resilient flooring should be questioned.



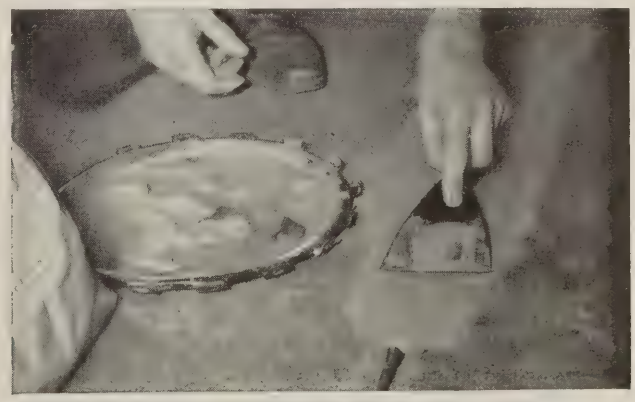
Surface defects in old double wood floors often damage or mar the finished resilient floor. This can be prevented by carefully renailing loose boards and sanding or planing warped areas to floor level. All badly damaged floor boards should be replaced. Sanded areas should be treated with No. S-140 Floor Size.



An underlayment, consisting of four-by-four-foot sheets of hardboard or plywood, is advised for rough wood subfloor areas which cannot readily be corrected by sanding. When laid over a tongue-and-groove floor, this underlayment provides a sound and economical base for all types of resilient flooring.



Another method of resurfacing damaged wood and concrete subfloors is the use of a cold mastic floor fill. It can be laid directly over the old floor. Wood screeds and a straightedge may be used to maintain the thickness necessary for leveling. Cold mastic fills will not adhere to subfloors treated with oil.



Although resilient flooring adhesives will fill minor cracks and crevices in concrete subfloors, it is best that all holes, cracks, and crevices be filled with a reliable cement crack filler before installation is started. It is important that all concrete subfloors be allowed adequate drying time before installing flooring.

Selecting the right type of underlayment

Resilient flooring materials all tend to mold themselves somewhat to irregularities of the surface over which they are installed. This tendency, in addition to the more or less severe seasonal expansion and contraction of subfloors, makes it extremely important that the proper type of underlayment for the particular conditions is used. It is equally important that the underlayment is installed properly. Otherwise, the resilient finish floor may lose some of its attractive appearance or even split.

There are two main types of subfloor to be considered—concrete (or other monolithic floors, such as terrazzo, ceramic tile, or steel) and wood—and two main types of underlayment—board and mastic. Board-type underlayments are generally used to resurface wood floors. Mastic-type underlayments are used to level concrete subfloors.

Mastic-type underlayments. Mastic underlayments are of several kinds. The best use a binder such as asphalt or latex in the mix. Those which consist simply of a powdered mixture such as cement, gypsum, and sand, to which only water is added, all too often break down under traffic when applied in thin coats or featheredges. For some installations, either type will be satisfactory, but the latex-type underlayment, such as Armstrong No. S-105 Chemical-Set Underlayment Cement, is best where a thin fill is required. For best results, the maximum thickness is up to, but not more than, ⅛″. Any thickness greater than ⅛″ should be applied in two or more applications. It is easily troweled and can be featheredged very satisfactorily. It can be installed under most normal conditions, including installation over radiant-heated subfloors. However, latex underlayment should not be used when a solvent-type asphalt adhesive such as Armstrong S-80 and S-90 will be used to install the resilient floor.

The recommended asphaltic-type underlayment is made with Armstrong Flormastic, an asphaltic compound, mixed with Lumnite cement and aggregates, is both inexpensive and satisfactory under any normal conditions, including installations over radiant-heated subfloors. Except for occasional spots to be featheredged, the fill should be at least ⅜″ in thickness. However, Flormastic should not be used when the resilient flooring is to be installed with No. S-104 Cement.

It is important to remember that the subfloor must be free from surface treatments such as paint, oil, and varnish before a mastic-type underlayment is applied.

Board-type underlayments. The basic choice here is between hardboard and plywood. In most cases, it has proved satisfactory to use hardboard on remodeling work and plywood on new construction. The main reason for this is that the thinner hardboard type of underlayment avoids excessive building up of old subfloors. In new construction, on the other hand, it is often desirable to build up the thickness of subfloors, and plywood serves this additional purpose well.



Over wood subfloors, galvanized chicken wire or expanded metal lath should be nailed to the floor to reinforce asphaltic-type underlayments. The wire netting allows the wood floor to expand and contract without damaging the floor fill.



A latex underlayment such as Armstrong S-105 Chemical-Set Underlayment Cement may be troweled to a thin "featheredge" in leveling worn or damaged areas of concrete subfloors. This often eliminates the need for complete resurfacing.

Types of Plywood as Classified by the Douglas Fir Plywood Association

*indicates suitability for underlayment as recommended by Armstrong Cork Company

Exterior Types

DFPA Grade-Trademark	FACE	BACK	INNER PLIES
*EXT-DFPA A-A	A	A	C
*EXT-DFPA A-B	A	B	C
*EXT-DFPA PLYSHIELD	A	C	C
*EXT-DFPA UTILITY B-C	B	C	C
*EXT-DFPA UNDERLAYMENT	C Repaired		C
C-C EXTERIOR	C	C	C
EXT-DFPA PLYFORM	B	B	C

Interior Types

DFPA Grade-Trademark	FACE	BACK	INNER PLIES
*INTERIOR A-A DFPA	A	A	D
*INTERIOR A-B DFPA	A	B	D
*PLYPANEL	A	D	D
*INTERIOR B-D DFPA	B	D	D
*PLYBASE C (repaired) D	C Repaired	D	D Ply next to face C or better
PLYSCORD	C	D	D
INTERIOR PLYFORM	B	B	C
*2-4-1-DFPA	C Repaired	D	D

Grades of Veneer (DFPA)

A	B	C Repaired	C	D
Best standard veneer. Smooth. May be more than one piece, well jointed. Neatly made repairs permitted.	Solid surface veneer. Circular repair plugs and tight knots permitted.	Improved "C" veneer. Underlayment grade.	Minimum veneer permitted in Exterior type. Knotholes to 1″ splits, plugs and other repairs permitted.	Used only for innerplies and the back of interior panels.

Hardboard. The most suitable type of hardboard underlayment for wood subfloors is Temboard Underlayment, as recommended in Armstrong Specifications. This hardboard has been in use for many years as an underlayment for resilient floors and has proved satisfactory. Tempered hardboards should never be specified as underlayments for resilient flooring.

Plywood. This material has long been used satisfactorily as an underlayment. The general term "plywood," however, should always be qualified in underlayment specifications. Certain types of plywood made to DFPA ratings are most suitable as underlayment. (See chart, top of page.)

Where excessive water spillage occurs, such as around drinking fountains, at entryways, and on counter tops, exterior plywoods are recommended. A thickness of ⅜″ should be used in all cases.

A new type of plywood, known as Novoply, is also suitable as an underlayment for resilient floors. This is a three-ply laminated board having a low density granular wood core and outer facings of high density wood flakes.

A new type of plywood subflooring known as 2-4-1 as specified by DFPA is suitable as a base for resilient floors. However, surface irregularities should be smoothed out with plastic wood filler and sanded as required.



Joint spacing of 1/32″ (or the thickness of a folded match book cover) should be provided between sheets of underlayment to permit expansion and contraction with varying moisture conditions. The sheets should be laid with joints staggered.



Hardboard or plywood should be firmly fastened to the subfloor with coated or ring-grooved nails or approved staplers. Fasteners must not be over 4″ o.c. in all directions and at edges and driven flush or 1/32″ below the underlayment surface.

Adhesives for resilient flooring

The life and serviceability of any resilient flooring installation depend greatly upon the application of the correct adhesive. Frequently, the selection of the proper adhesive is as important as the selection of the floor itself. While the bonding strength must be enough to prevent separation from the subfloor under slightly greater than normal stresses, it must not be so strong that it will be too difficult to remove the flooring later if necessary.

Factors to Be Considered

The type of subfloor, its condition, and the kind of resilient flooring material to be installed are important factors in the selection of the adhesive. Below-grade subfloors, for example, may require a different type of adhesive than suspended subfloors, and asphalt tile must be installed with a different adhesive than linoleum. The adhesive selected should be easy to handle and apply. It should develop and retain the correct "tack" or gripping power throughout the desired working period. The adhesive must have correct viscosity. If it is too thin, it will penetrate too deeply into the subfloor or the flooring and the bonding power will break down due to lack of sufficient adhesive at the surface. For this reason, resilient flooring adhesives should never be thinned except as specified by the manufacturer.

As a guide in the proper selection of adhesives, the Armstrong Research and Development Center has prepared the chart shown on page 45.

Armstrong No. S-128 Paste is an all-purpose adhesive developed for the installation of lining felt, Cushion-Eze Underlayment, linoleum, linoleum tile, and sheet Vinyl Corlon. It should be used only on suspended subfloors.

Armstrong No. S-130 Resilient Tile Paste was formulated especially to simplify and speed the installation of Linotile, rubber tile, linoleum tile, and Custom Corlon Tile, over suspended subfloors. It develops a quick tack and keeps tiles from sliding or moving while mechanics work over finished areas.

Armstrong No. S-235 Cement is a latex-type cement which is both alkali and moisture resistant. It is especially formulated for the installation of sheet Corlon with Hydrocord Back over on- and below-grade concrete subfloors. It is also recommended for installing rubber tile and Custom Corlon Tile over suspended dry, well-cured on-grade concrete floors.

Armstrong No. S-80 Primer is used to minimize moisture and seal porous, dusty concrete subfloors for asphalt tile and Excelon Tile installation, thus preparing the subfloor for the proper adhesive.

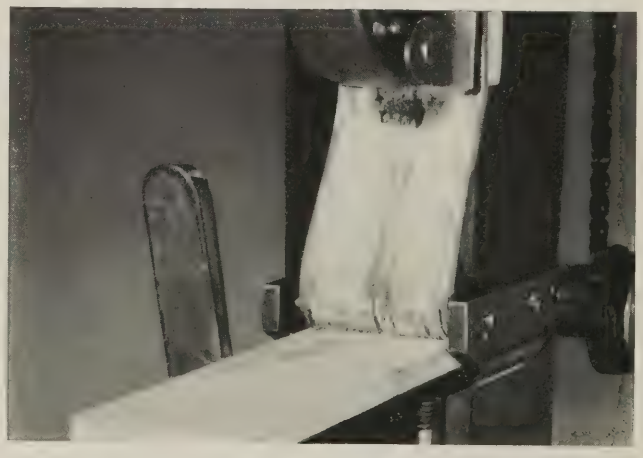
Armstrong No. S-90 Asphalt Cement is recommended for on- or below-grade installation of asphalt tile or Excelon Tile, especially if the subfloor is not fully cured or there are traces of dampness. It resists alkaline moisture.

Armstrong No. S-160 Emulsion is an all-purpose adhesive for asphalt tile and Excelon Tile over suspended, grade-level, and below-grade subfloors. It is resistant to both alkali and moisture.

Armstrong No. S-700 Brushing Cement can be used on all types of subfloors and for Service Gauge Excelon eliminates the need for lining felt.



The bonding strength of any adhesive, as shown in the above test, is determined by its integral cohesive strength and adherence to the surfaces of the subfloor and the flooring material.



To insure uniform quality, the Armstrong Research Laboratories continually test adhesives before and after "setting." The "stripping test," above, measures bonding strength after setting.

Armstrong No. S-104 Chemical-Set Waterproof Cement is a special-purpose adhesive developed for the installation of Armstrong Rubber Tile, Custom Corlon Tile, and Opalesq Tile over on- or below-grade concrete where surface moisture is a problem.

Armstrong No. S-214 Cement is recommended for cork tile and Custom Vinyl Cork Tile on grade and suspended floors. It is also recommended for all resilient floors, except asphalt and Excelon Tile, where surface moisture is a problem.

Recommended adhesives for Armstrong resilient floors, felt, and Cushion-Eze Underlayment

Type of Resilient Floor	Strip Wood, T&G Hardboard & Plywood Suspended	Concrete Suspended†	Concrete On Grade†	Concrete Below Grade†	Ceramic Tile, Terrazzo or Marble Suspended	Ceramic Tile, Terrazzo or Marble On Grade	Steel ****	Magnesite	Floor Fill	
									Asphalt Type (Suspended)***	Latex Type (Suspended)
Linoleum Sheet Corlon (with Armofelt Back)	S-128	S-128	Don't Install	Don't Install	S-235 or S-214 or S-128 over felt	Don't Install	S-235 or S-214	Obtain special recommendation from Armstrong for individual projects	S-235 or S-214	S-128, S-214, or S-235
Sheet Corlon with Hydrocord Back: Decoresq	S-128, direct or over felt	S-235	S-235	S-235	S-235	S-235	S-235		S-235	S-235
Tessera		S-235	S-235	S-235	S-235	S-235	S-235		S-235	S-235
Linotile	S-130	S-130	Don't Install	Don't Install	S-235, S-214, or S-104	Don't Install	S-235, S-104, or S-214		For Opalesq: Install Lining Felt with S-235 or S-214, Tile with S-235.	S-130, S-214, or S-235
Opalesq Vinyl Tile	S-235	S-235	S-235 or S-104	S-104	S-235 or S-104	S-235 or S-104	S-235			S-235
Rubber Tile and Custom Corlon Tile	S-130	S-130	S-104** or S-235	S-104	S-235 S-104, or S-214	S-104 or S-235	S-104, S-235, or S-214		For Cork Tile: Felt with S-235 or S-214, Tile with S-214.	S-130, S-214, or S-235
Cork Tile and Custom Vinyl Cork Tile	S-214	S-214	S-214*	Don't Install	S-214	S-214*	S-214		Other Tile: Felt with S-235 or S-214, Tile with S-130.	S-214
Linoleum Tile	S-130 or S-128	S-130 or S-128	Don't Install	Don't Install	S-214 or S-235	Don't Install	S-214 or S-235			S-130, S-128, or S-214
††Asphalt Tile and ⅛″ Excelon Tile	S-160 or S-700	S-160, S-700, or S-90	S-160, S-700, or S-90	S-160, S-700, or S-90	S-160, S-700, or S-90	S-160, S-700, or S-90	S-160, S-700, or S-90	S-700 or S-80 Primer, and S-160	S-160 or S-700	S-160 or S-700
Service Gauge Excelon Tile	S-700	S-700 or S-90	S-700 or S-90	S-700 or S-90	S-700 or S-90	S-700 or S-90	S-700 or S-90	S-700 or S-80 Primer, and S-90	S-700	S-700
Lining Felt•	*Must* for ⅛″ burlap back linoleum and most resilient tiles. *Optional* for all other sheet linoleum and Corlon, ⅛″ Excelon Tile and asphalt tile. Install felt with S-128	Optional for all floors. Install with S-128	Don't Install	Don't Install	Optional for all floors. Install with S-235 or S-214	Don't Install	Optional for all floors. Install with S-235 or S-214	Obtain special recommendation from Armstrong for individual projects	Recommended for all resilient tile except asphalt and Excelon Tile. Install with S-235 or S-214	Optional for all floors. Install with S-128 or S-130
Cushion-Eze Underlayment••	S-128 When over old flooring, use S-235 or S-214	S-128	Don't Install	Don't Install	S-235 or S-214	Don't Install	S-235 or S-214	S-235 or S-214	S-235 or S-214	S-128

NOTE: S-1200 Contact Bond Cement or S-275 Top-Set Cove Base should be used to install rubber cove base. Floor areas subjected to frequent washings and excessive surface moisture should be installed with S-214 Waterproof Cement or S-235 Cement.

†For leveling concrete subfloors, use S-105 Chemical-Set Underlayment Cement (Latex Type) or asphalt fill made with S-170 Flormastic.

††Dusty or porous concrete subfloors should be primed with S-80 prior to the installation of Asphalt Tile or Excelon Tile with S-90, S-700, or S-160. Asphalt Tile and ⅛″ Excelon Tile should be installed over lining felt on stripwood subfloors. S-80 Primer and S-90 Cement should not be used with lining felt. Where Asphalt Tile and Excelon Tile are installed direct to plywood, hardboard, or steel with S-160, S-700, or S-90, it is necessary to use S-80 Primer.

*All Cork Tile may be specified for certain grade-level installations where the floor surface of the concrete slab is at least 12″ above grade level and the ground slope is away from the building. The subfloor should be well cured and visibly dry. The Cork Tile shall be installed with S-214 Waterproof Cement.

**Where the concrete slab is new and not completely cured or abnormal conditions exist, S-104 Chemical-Set Cement should be specified.

***For Asphalt Tile and Excelon Tile over asphalt-type floor fill, use S-160 Emulsion or S-700.

****For application over other metal subfloors, refer to your Armstrong office.

•Use S-149 Lining Felt with Linotile, Rubber Tile, Custom Corlon Tile, Opalesq Vinyl Tile, and Cork Tile (all types). Use S-150 Lining Felt with felt-backed linoleum and sheet Corlon, a must for linoleum tile.

••Cushion-Eze Underlayment is not recommended for use on on-grade or below-grade floors. It should not be used under new Asphalt Tile or Excelon Tile, Custom Vinyl Cork Tile, Cork Tile, Rubber Tile, Custom Corlon Tile, and Opalesq Vinyl Tile, and Tessera Vinyl Corlon. It should also not be used over Asphalt or Excelon Tile where subfloors are strip wood, hardboard or plywood.

Maintenance of resilient floors

Although the care of resilient floors often is believed to be outside the province of the architect or builder, serious problems can arise when maintenance is not taken into consideration in the selection of the flooring material. This is particularly true when the owner of a building is uninformed and proceeds with his own ideas of floor maintenance to the point where the floor is ruined. Maintenance requirements should be considered along with the type and amount of traffic to which the floor will be subjected. Excessive, uneconomical maintenance may result if an unsuitable floor is installed.

Armstrong representatives are always ready to offer any follow-through that may be needed to make certain that the owner of a new floor understands the maintenance required for its most satisfactory service.

Apart from their handsome appearance, one of the main reasons for the popularity of resilient floors is their ease of cleaning. They never need costly refinishing. Occasional washing and waxing, along with regular sweeping, are all the maintenance they normally require. However, resilient floors vary in the amount of care they need. For this reason, the easiest to maintain floors should be selected for areas, such as entrance ways, where service conditions are most severe.

In order to retain a lustrous finish, and to provide the added protection that waxing affords, Armstrong has always encouraged occasional careful applications of a high-quality wax, after washing, as the proper care for plastic floors of all kinds.

Since the maintenance characteristics of the different types of resilient floors overlap, and maintenance is also affected by the color and pattern of the flooring selected, the following ranking is intended as an approximate guide to the maintenance required by various Armstrong Floors. Those rated "Superior" normally require the least care.

Superior Linotile
Excelon Tile (Vinyl-Asbestos)
Custom Corlon Tile (Homogeneous Vinyl)
Opalesq Tile (Homogeneous Vinyl)
Custom Vinyl Cork Tile
Any Resilient Floor with Cushion-Eze Underlayment (see page 27.).

Linotile is considered the easiest to maintain of all the Armstrong Floors. Its dense, tough composition makes it an excellent choice for heavy-traffic areas. Both Excelon Tile and Custom Corlon Tile are vinyl plastic floors with exceptional maintenance advantages. Both provide unusual resistance to the harsh cleaners which are all too often used in spite of manufacturer's warnings.

Minimum maintenance is required for Armstrong Custom Vinyl Cork Tile because of its vinyl protection. The use of Cushion-Eze Underlayment with linoleum, sheet vinyl Corlon, and Linotile (see page 27) makes the floor easier to maintain because the foam underlayment keeps dirt from being ground into the surface of the flooring.

Excellent Sheet Vinyl Corlon
Linoleum

Linoleum perhaps best typifies the years of popularity which resilient flooring materials have enjoyed for their ease and economy of maintenance. Regular sweeping and occasional washing and waxing are all that are required to keep linoleum in good condition. Armstrong Corlon, a sheet-type plastic flooring, offers the additional advantage of excellent resistance to common chemical reagents.

Good Rubber Tile
Asphalt Tile

The smooth plate finish of rubber tile requires slightly more frequent maintenance than the floors described above if it is desired to retain the high gloss which adds so much to its beauty. Rubber tile also benefits from occasional buffing with No. 00 steel wool. This keeps the rubber in prime condition and helps preserve the finish. For its low cost, asphalt tile provides a floor that is remarkably economical to maintain. Careful cleaning and periodic waxing, especially in the first months after installation, will help assure easy maintenance.

Fair Cork Tile

Regular cork tile, without the vinyl protection as in Custom Vinyl Cork Tile, is not ordinarily recommended for heavy traffic areas and should not be installed where it will be subjected directly to tracked-in dirt. In areas of less severe traffic, cork tile is readily maintained by daily sweeping and occasional washing and waxing. In cases of excessive soiling, machine scrubbing or sanding and refinishing may be necessary.

The following recommendations for resilient floor care are the result of continuing research over many years.

Sweeping. Dirt tends to slip off easily from the smooth, lustrous surface of any resilient floor. Daily sweeping with a soft broom or dry mop will keep this type of flooring clean for long periods. Oil mops or oil-type sweeping compounds are not recommended.

Washing. "More floors are washed away than worn away," says an old adage in the flooring industry. Unless they are subjected to unusual amounts of dirt, resilient floors should be washed thoroughly only two or three times a year. However, it is good practice to clean the floor lightly every week or two using a very dilute solu-

tion of Armstrong Cleaner (one-half cup to a pail of warm water) to remove surface dirt. Armstrong Cleaner, manufactured especially for resilient floors, is recommended for all types of floors. New resilient floors should not be washed until the adhesive is thoroughly set—a period of at least four or five days for all resilient floors.

Waxing. After a resilient floor has been thoroughly cleaned and as often as needed after routine cleaning, it should be waxed. Most people have a tendency to use too much wax. A thick film of wax forms a crust on top, leaving a soft, gummy mass underneath. Dirt penetrates the crust and lodges in the soft wax, making the floor appear gray and dirty. It is much better to apply two thin coats than one thick coat.

Paste waxes, which contain solvents such as naphtha or turpentine, should never be used on asphalt or rubber tile. The ideal wax for all resilient floors is a water-emulsion type such as Armstrong Linogloss Wax, which dries in less than 20 minutes to a hard, colorless finish that is lustrous but not shiny. Linogloss Wax is made especially for resilient floors. Armstrong Wax Clean also is excellent for maintaining all types of resilient floors. Resilient floors should never be treated with lacquers, varnishes, or similar finishes.

Stain removal. The adjoining chart shows suggested methods of removing stains from all types of Armstrong Resilient Floors. It does not cover all types of blemishes, and the methods outlined may not remove all stains. Armstrong will gladly advise on any stain problem for which these methods do not prove fully effective.

Protection. An element in the care of resilient floors which is often overlooked, but which is absolutely necessary to retain the floor's beauty, is the use of furniture rests. The function of a furniture rest is simply to extend the area over which the weight of furniture loads is distributed, and thus prevent indentation.

Type of stain	Type of floor			
	Linoleum Linotile Corlon	Asphalt Tile Excelon Tile Custom Vinyl Cork Tile	Rubber Tile Custom Corlon Tile	Cork Tile
Alcohol	2	1	2	2
Acids Alkalis Burns Drain Cleaners Ink Iodine Lye Mercurochrome Metal Nail Polish	3	3	3	3
Chewing Gum Paint Varnish Tar	4	4	4	4
Dry Cleaners Fruit Juices Grease Shoe Polish	1	3	3	1
Rubber Heel Marks	3 or 5	3	3	3 or 5

Methods of removal

1. Wash with Armstrong Cleaner, rinse, dry and wax.
2. Rub with No. 0 dry steel wool, rinse, dry and wax.
3. Rub with No. 0 steel wool dipped in Armstrong Cleaner, rinse, dry and wax.
4. Remove with putty knife, rub with No. 0 steel wool dipped in Armstrong Cleaner, rinse, dry and wax.
5. Rub lightly with cloth dipped in paste wax. Buff.

Recommendations for the selection of Armstrong Furniture Rests

Weight of fully loaded furniture	size of rest or cup required (specify by number)				
	Sheet Corlon and Linoleum	Linotile	Excelon, Asphalt Tile	Custom Corlon, Opalesq, Rubber Tile	Cork Tile
Up to 50 lbs. per leg	NT-10 CT-100 CFT-300 CFT-301	NT-10 CT-100 CFT-300 CFT-301	NT-20 CT-200 CFT-400 CFT-401	NT-10 CT-100 CFT-300 CFT-301	NT-20 CT-200 CFT-400 CFT-401
50-100 lbs. per leg	NT-20 CT-200 NDC-6 CFT-400 CFT-401	NT-10 CT-100 NDC-6 CFT-300 CFT-301	NT-50 CT-500 NDC-7	NT-10 CT-100 NDC-6 CFT-300 CFT-301	NT-35 CT-850 NDC-6
100-150 lbs. per leg	NT-20 CT-200 NDC-6 CFT-400 CFT-401	NT-10 CT-100 NDC-6 CFT-300 CFT-301	NDC-225	NT-10 CT-100 NDC-6 CFT-300 CFT-301	NT-50 CT-500 NDC-7
150-200 lbs. per leg	NT-35 CT-350 NDC-6	NT-10 CT-100 NDC-6 CFT-300 CFT-301	NDC-325	NT-10 CT-100 NDC-6 CFT-300 CFT-301	NT-50 CT-500 NDC-225
200-250 lbs. per leg	NT-35 CT-350 NDC-6	NT-20 CT-200 NDC-6 CFT-400 CFT-401	NDC-325	NT-20 CT-200 NDC-6 CFT-400 CFT-401	NDC-225
250-300 lbs. per leg	NT-50 CT-500 NDC-7 NDC-125	NT-20 CT-200 NDC-7 NDC-125 CFT-400 CFT-401	NDC-325	NT-20 CT-200 NDC-7 NDC-125 CFT-400 CFT-401	NDC-325



CFT Chrome Furniture Type



NT Nail Type



CT Cotter Type



NDC Cup Type

Inspecting resilient floor installations

Flooring installations usually call for no more than four inspections. First is the inspection of the subfloor prior to installation of the finish flooring. Then the materials should be inspected, followed by an inspection of the resilient floor during installation. Finally, the completed work should be inspected.

The following information, and the accompanying chart —which outlines the special factors requiring attention for various types of subfloors and finish floors—should be helpful in timing inspections.

Inspection of Subfloors

The condition of the subfloor has an important bearing on the appearance as well as the life and serviceability of a resilient floor. Subfloor inspection should be made immediately before the installation of the finish floor.

New concrete subfloors. It is important that all new concrete subfloors be thoroughly dry, clean, and cured to a hard, non-powdery finish. Dampness or a powdery surface will prevent effective bonding of the adhesive to the subfloor. Concrete subfloors should also be free of expansion joints, trowel marks, and other imperfections. A smooth subfloor is important, since irregularities will show on the surface of the resilient flooring material and high points will receive excessive wear.

Old concrete subfloors. Inspect for proper filling of holes, cracks, and the leveling of uneven areas. The slab should be thoroughly dry and free from oil, paint, varnish, dirt, and other foreign matter. (For methods of preparing old concrete subfloors for resilient flooring, see page 41.)

New wood subfloors. Where resilient floors are to be installed over new wood subfloors, it is important to check the construction specifications against the manufacturer's recommendations as to construction with single, double, tongue-and-groove flooring, or hardboard or plywood underlayments. (See page 42 for recommended underlayments.) Major changes from the manufacturer's recommendations may call for individual recommendations for the proper installation of the resilient floor selected. Armstrong representatives are always willing to provide assistance on such special recommendations for Armstrong resilient floors.

Old wood subfloors. All loose boards should be renailed and all badly worn or damaged boards replaced. Uneven areas should be sanded or properly filled with a floor fill. Sanded wood floors should be sealed to prevent warping due to absorption of moisture from adhesives. All previous finishes, oil, dirt, and foreign matter should be completely removed. (This subject is treated in more complete detail on page 40.)

Inspection of materials. Before the flooring contractor starts the job, all resilient flooring materials to be used should be inspected for quality, color, and type as called for in the flooring contract. Particular attention should be given to the types of lining materials and adhesives to be used, especially if the contract agreement or the architectural specifications permit the use of underlayments and adhesives other than those recommended by the manufacturer.

Inspection of the Installation

Poor workmanship, such as careless cutting and fitting, is best corrected early in the job—and inspection of the resilient floor during installation can avoid costly repair and correction later.

One of the most important operations in the installation of linoleum, plastic sheet flooring, and the majority of resilient tiles is the "rolling" process. This should insure a smooth, even bond to the subfloor by getting rid of all air bubbles, ripples, and uneven areas. The time required for proper rolling should not be shortened in order to speed the completion of the job, as this operation is vital to a satisfactory installation.

In areas where marbleized, Spatter or patterned linoleum or Corlon plastic sheet flooring is being used, particular attention should be paid to seam matching.

In resilient tile installations, all tile edges should be tight to the floor, and joint lines should be symmetrical and even.

Inspection of Special Installations

The preceding paragraphs cover inspection details ordinarily encountered in checking resilient floor installations over wood and concrete subfloors. The inspection of resilient floors over other types of subfloors—such as magnesite and metal—or of floors employing special techniques—such as the use of metal strips in conjunction with resilient floors for decorative effect—is governed by individual circumstances. In such cases, where general instructions may not be adequate, it may be advantageous to call on an Armstrong representative for assistance.

Factors important in resilient floor inspection

PRE-INSTALLATION INSPECTION

Type of Subfloor	Inspect for	Floor Should Be
NEW CONCRETE	Proper curing and drying. Moisture or dampness.	Free of expansion joints, and trowel marks, grease, dirt, or foreign matter. Free of imperfections. Hard, dry, and non-powdery. Free of curing and breaking compounds.
NEW WOOD	Compliance with flooring specifications of maker as to construction in single, double, tongue-and-groove flooring or board-type underlayment.	Smooth, dry, and free from grease, dirt, old adhesive film, or foreign matter.
OLD CONCRETE TERRAZZO CERAMIC TILE	Soundness, dryness, and necessary repair.	Level, free from cracks, holes, paint, varnish, and other finish. Also free from oil, dirt, and other foreign matter.
OLD WOOD	Renailing, replacement of worn or damaged boards, necessary filling of holes and cracks.	Sanded smooth, free of paint, varnish, oil, old adhesive film, or other foreign matter.

INSTALLATION INSPECTION

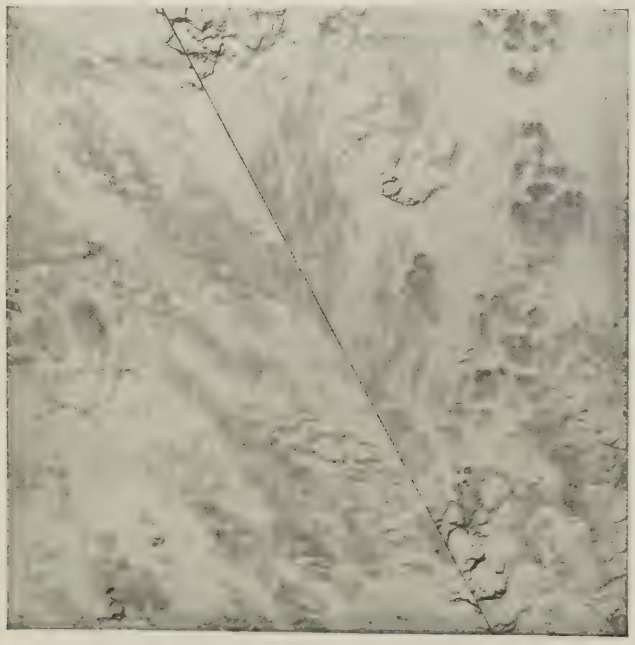
Type of Resilient Floor	Inspect During Installation for	Check Finished Floor for
LINOLEUM CORLON (Sheet type, all backings)	Proper installation of lining felt or Cushion-Eze Underlayment when required. Proper matching of pattern at seams. Neat cutting and fitting, around pipes and fixtures. Thorough rolling.	Over-all appearance. Air bubbles caused by poor rolling. Open seams. Proper cleaning and waxing.
ASPHALT TILE EXCELON TILE RUBBER TILE CUSTOM CORLON TILE OPALESQ TILE CUSTOM VINYL CORK TILE LINOTILE LINOLEUM TILE	Symmetrical joint lines. Open joints. Poor tile laying such as adhesive between tile joints. Thorough rolling of rubber tile, Custom Corlon Tile, Opalesq Tile, Custom Vinyl Cork Tile, linoleum tile, and Linotile. Neat cutting and fitting.	Over-all appearance. Raised joints. Open joints. Loose tile. Proper cleaning and waxing.
CORK TILE	Symmetrical joint lines. Proper finishing where square-edged and unfinished cork tile are used. Thorough rolling.	Over-all appearance. Smooth surface. Open joints. Proper cleaning and special waxing.



An example of perfect workmanship in seam cutting and pattern alignment. Note how the over-all effectiveness of the floor design is greatly increased by proper matching of the repeat unit of the design. The floor in the photograph at left has a joint between two pieces of linoleum running diagonally from top to bottom through the center of the picture. The joint is barely noticeable because of excellent workmanship.



All joints or seam lines should be symmetrical. Uneven lines, such as illustrated at right, mar the appearance of both linoleum and resilient tile floors. This condition is more likely to occur in resilient tile installations. Armstrong resilient tiles are die-cut to a perfect square which eliminates this condition provided the flooring mechanic has squared the room before starting the installation and has laid the tiles carefully.



For the proper appearance of Marbelle, Decoray, Spatter, and Jaspé linoleum installations, the sheets should be "reversed" or turned end for end. This gives a continuous flow to the graining and shading; also eliminates the optical illusion of "raised seams," shown here or off-color between the pieces. The same principle applies to Textelle and Imperial linoleum to assure best pattern appearance.

Walls and counter tops

Combining decorative beauty and practicality, vinyl surfacing materials for walls and counters are popular companions to resilient floors. They add durable color and keep maintenance costs at a minimum. In school and hospital rooms and corridors, for example, these surfacing materials are easily kept clean from smudges and resist staining from splashed and spilled things.

Armstrong Vinyl Plastic Surfacing is a flexible sheet vinyl material highly recommended for walls, counters, and sink tops. It is not easily harmed by hot soapy water, cleaning detergents, or other normal reagents. Accidental cuts can be sealed with a soldering or welding technique. Slight burns and scorches can be removed with steel wool.

Armstrong Vinyl Corlon with Hydrocord Back in Tessera Series, even though primarily flooring material, has many of the advantages of Armstrong Vinyl Plastic Surfacing. To a significant degree, Vinyl Plastic Surfacing is more impervious to staining from foodstuffs, etc., which ordinarily would not reach the floor or would normally be wiped up without delay. Aside from this and the greater cost of thicker gauges, Armstrong Vinyl Corlon with Hydrocord Back has much to offer especially when colors and styles not obtainable in Vinyl Plastic Surfacing are desired.

Installation

In any areas where water is splashed, successful installation depends almost entirely upon making the seams and edges tight and waterproof. Moisture must not be allowed to get under the material and loosen the adhesive bond. Good construction at the basin requires the use of compression-type sink rims and the proper type of metal edgings. Manufacturers of these items recommend a particular type of metal edging and a particular type of construction. Names of firms making metal edgings will be furnished by Armstrong upon request.

Preparation of Surfaces. The base surface must be absolutely clean. All paint, varnish, felt, and old adhesives should be removed by sanding or by the use of paint remover or safe cleaning fluids. Holes and cracks should be filled with patching plaster or plastic wood and sanded smooth when dry. Where existing sink tops and counters are to be re-covered, badly warped or decayed wood and delaminated plywood should be replaced with new ¾″ exterior plywood, grade BC (Utility) or better.



This residential installation demonstrates the adaptability of Armstrong Vinyl Plastic Surfacing to wall, as well as sink and counter-top, use. This flexible plastic surface can be formed into attractive roll-type counter edges with no extra material cost.



For the wainscoting and counters in this nurses' station, Armstrong Vinyl Plastic Surfacing was selected for decorative advantages and reduction of clatter and reverberation from dropped objects. The floor is Armstrong Custom Corlon Tile.



Capwell Department Store
Oakland, California
Counter Tops: Armstrong Vinyl Plastic Surfacing

How to write clear specifications for resilient floors

In writing specifications for resilient floors, it is important that the specifier understand, in general, the complexities of installation, labor, and material costs. It is equally important that the specification writer be able to correctly classify the materials and work to be done so that all bidding contractors will base their estimates on the same standards. In many instances, the misunderstandings that occasionally arise on a project stem from the incomplete details of the specifications. The lack of proper details can have a serious effect on the contractor's labor and material costs. Because of the variety of materials the specification writer works with, it is impractical for him to become familiar with all such details. However, if he has a working knowledge of variations in cost of resilient flooring materials, labor, and subfloor preparation, he should have little trouble in developing clear and concise resilient flooring specifications.

Price Variations in Flooring Materials

Among the factors which govern resilient flooring material prices are:

Type and Style of the Resilient Flooring
Type of Backing
Gauge or Thickness of the Material
Color and Graining
Standard or Special Sizes

Resilient flooring materials are manufactured in several types and gauges to meet various service requirements. In many cases, each type is made in a number of stylings to permit greater design freedom.

One of the items often omitted from resilient flooring specifications is the naming of the particular flooring style and color group. This part of the specification is a very important factor in figuring costs. For example, Armstrong Linoleum falls into several price groupings according to gauge, style, and backing as explained on page 34.

Armstrong Asphalt Tile prices vary according to color. The "A" or darkest colors are the lowest in cost and grade up in price to the "D" or lightest colors.

Armstrong Rubber Tile, Cork Tile, Linotile, and Excelon Tile vary in product cost, but there is no price differential within the color lines. (The price structure of resilient floorings is explained in greater detail in the section titled "Relative costs of resilient floors" on page 24.)

One of the clearest ways to specify resilient flooring materials is to indicate the manufacturer's name and color number. When this is not possible, or if a floor design cannot be selected in advance, it is important that a clear understanding be given of the percentage of each material to be used. For example,

". . . ⅛" Asphalt tile design to be composed of color groups: B—25%, C—50%, D—25%, . . ." or,

". . . Linoleum in rooms 110 and 112 to be ⅛" Jaspé with 12" borders of ⅛" plain regular colors."

Such a specification will give each flooring contractor a standard basis for figuring his bid.

Variations in Contractor's Installation Costs

The labor involved in laying a particular floor design is a big factor in figuring price. If the specification fails to give a clear idea of the complexity of the design, the contractor may base his bid on fewer installation man hours and underbid the job. In such cases, there is sure to be an expenditure of time and words—if not money—before the misunderstanding is settled.

To prevent such misunderstandings, it is recommended that detail drawings of at least one of the floor designs be shown when they are too complex for adequate written description in the specifications. A typical example of such a drawing is shown on page 54. Simplified specifications of materials, colors, gauges, and sizes shown on, or supplied with, the drawings will also be helpful.

Underlayment Requirements in Remodeling Jobs

On remodeling work it is always advisable to list all necessary repairs in the specifications, such as replacing badly worn boards, sanding floors, the use of hardboard underlayments such as Armstrong Temboard Underlayment or plywood—or the asphaltic or latex type of mastic underlayment, filling cracks in concrete, etc. Never use a blanket specification such as, ". . . the old subfloor shall be repaired to provide a suitable base for resilient flooring." Such specifications invariably invite the least expensive method of subfloor preparation, which is seldom to the advantage of the customer. From the contractor's point of view, competition leaves him no choice but to bid on the

least expensive methods. Tight subfloor preparation specifications put all contractors on an equal bidding basis.

It is not necessary for the specifications to state how the flooring contractor should install the flooring materials. It is far safer and more exact to specify that the resilient flooring materials be "installed in accordance with the manufacturer's latest printed instructions."

SPECIAL NOTE: Since the Armstrong Line of floors is available to any legitimate flooring contractor, an outright specification for Armstrong materials will produce competitive bidding while also assuring the builder of premium quality materials.

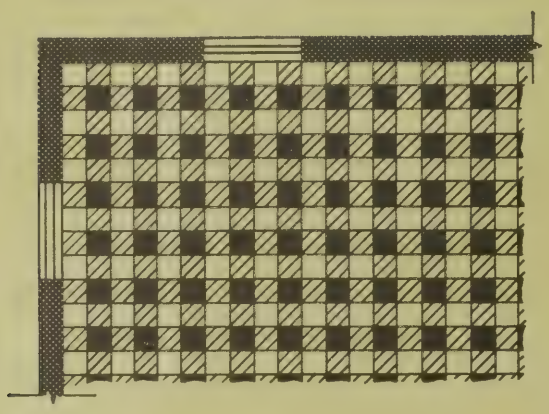
From specifications

Section No. 10 Resilient Flooring

Furnish and install 1/8" Armstrong Asphalt Tile and heavy gauge Armstrong Linoleum in the colors, patterns, sizes and designs shown on the drawings and in the areas listed in the schedule of finishes.

All products covered by these specifications are to be installed in accordance with the latest edition of Armstrong Installation Specifications by a qualified Armstrong flooring contractor whose bid shall include all the materials and labor required.

From detail drawings



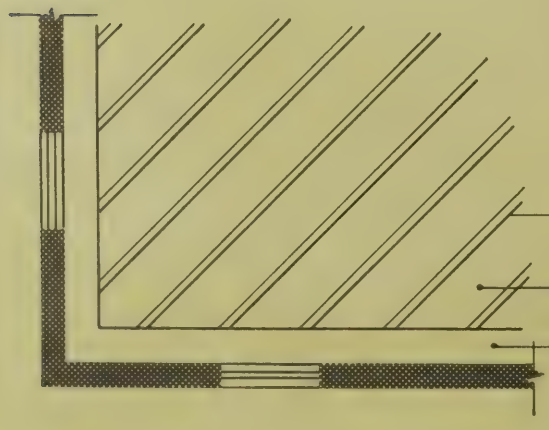
FLOOR DESIGN
ROOMS
6 • 10 • 13 • 14

Armstrong
⅛" Asphalt Tile
All Tile 9" x 9"

□ D-911

▨ C-924

■ B-923



FLOOR DESIGN
OFFICE RM. 125

Armstrong
⅛" Gauge Linoleum

#27 ½" Linostrip

#018 Marbelle

#27 Plain

Simple detail drawings of the floor design with the manufacturer's color numbers indicated eliminate the need for a full description of the materials to be used. From the drawings and general specifications, the bidding contractor can quickly see the work involved in the flooring job. Installation methods approved by the manufacturer of the flooring should be specified.

Specifications for resilient flooring

THESE SPECIFICATIONS COVER INSTALLATIONS OF

Asphalt Tile—Greaseproof Asphalt Tile—Vinyl Corlon (Sheet Plastic)—Custom Corlon Tile—Opalesq Tile—Linotile—Rubber Tile—Linoleum—Linoleum Tile—Cork Tile—Custom Vinyl Cork Tile—Excelon Tile.

Wall Covering Specifications . . page 59

Complete Unabridged Installation Specifications for any Armstrong Floor or Wall Material may be had upon request from any Armstrong Office.

How to use—In the following specifications, details have been classified under the headings of the different trades involved as well as under the names of the various types of Armstrong Floors and Installation Sundries. This arrangement of the specification details has been made to facilitate the use of this information in either an outright or descriptive product designation.

Caution—Armstrong Vinyl Corlon with felt backing, Armstrong Linotile, and Armstrong Linoleum should not be installed on any floor in direct contact with the ground. Armstrong Vinyl Corlon with Hydrocord Back may be installed on grade or below grade in accordance with Armstrong Installation Specifications. Armstrong Opalesq Tile, Rubber Tile, and Custom Corlon Tile may be specified for grade-level and below-grade installation when installed in accordance with Armstrong Installation Specifications. Armstrong Cork Tile and Armstrong Custom Vinyl Cork Tile may be installed on grade in accordance with Armstrong Installation Specifications. Armstrong Asphalt Tile, Armstrong Excelon Tile, and Armstrong Greaseproof Asphalt Tile are recommended for installation on subfloors on or below grade as well as on suspended floors.

BRIEF SPECIFICATION

Furnish and install Armstrong Resilient Floors in the types, gauges, colors, sizes, and designs as herein specified on areas listed below or where shown on drawings. (List areas here.) All products covered by these specifications are to be installed in accordance with the latest edition of Armstrong Installation Specifications by a qualified Armstrong flooring contractor whose bid shall include all the labor and materials required.

COMPLETE SPECIFICATION

SPECIFICATIONS FOR FLOORING CONTRACTOR

The General Conditions of the Contract are a part of these specifications.

1. Work Included

The contractor shall furnish all labor and materials required to complete all the resilient flooring and cove base work shown on the drawings, or herein specified as follows:

a. Linoleum, Sheet Corlon, Linotile, Asphalt Tile, Excelon Tile, Rubber Tile, Custom Corlon Tile, Opalesq Tile, Cork Tile, and/or Custom Vinyl Cork Tile floors, Flash-Type and/or Top-Set Rubber Cove Base.
 (1) on the areas listed below, or
 (2) where shown on drawings.
b. Lining felt.
c. Cushion-Eze Underlayment.
d. Cleaning, waxing, and polishing of all work installed under this section of the specification.
e. (number) samples 3″ x 3″ or larger, of each color and type of resilient floor and base.
f. Shop drawings of designs of custom floors.
g. Guarantee.
h. Underlayment (include when specifying hardboard, plywood, latex, or asphaltic mastic floor fill when any underlayment is to be installed by the flooring contractor). Do not specify asphaltic floor fill over areas where Rubber Tile, Opalesq Tile, or Custom Corlon Tile is being installed with Armstrong No. S-104 Chemical-Set Waterproof Cement.

2. Work Excluded

(Items which could be considered as part of this section, but which are included in the specifications for other trades.)

a. Install resilient floors only to, but not under, the base of cabinets, cupboards, and other built-in furniture.
b. Underlayment (include when it is desired to have the installation of hardboard such as Armstrong Temboard Underlayment, or plywood as an underlayment under the carpentry contract).
c. Heat and ventilation during cold weather to maintain 70° F. for 48 hours before, during, and after installation.

3. Linoleum

Linoleum shall be

(1) Linoleum with burlap, Armofelt, or saturated felt backing as manufactured by the Armstrong Cork Company, or
(2) first-quality material and composed of an oxidized oleoresinous composition, pigments, and fillers and shall have a supporting backing of (specify type). It shall be dense but resilient and highly resistant to abrasion.

3A. Plastic Flooring

Plastic floor covering shall be

(1) Vinyl Corlon (sheet-type) with Armofelt or Hydrocord backing as manufactured by the Armstrong Cork Company, or
(2) Opalesq Tile or Custom Corlon Tile as manufactured by the Armstrong Cork Company, or
(3) first-quality material 3/32″ or 1/8″ thick composed of vinyl resins, alkaline resisting color pigments, and other plastic compounds, all thoroughly mixed to form a dimensionally stable and resilient flooring. It shall be dense but resilient and highly resistant to abrasion. Roll or sheet-type material shall have a supporting backing of (specify type). Homogeneous tile shall not have a supporting backing. Tile shall be accurately cut with square edges. The tile shall be capable of withstanding heavy furniture loads up to 200 lbs. per sq. in. without exhibiting permanent indentation.
(4) Excelon Tile as manufactured by the Armstrong Cork Company, or
(5) first-quality material, 1/16″, 3/32″, or 1/8″ thick, and composed of a thoroughly blended composition of vinyl plastic resins, asbestos fibers, alkali-resisting pigments and fillers. It shall be dimensionally stable, fire retardant, and resistant to alkali, grease, and oils. Tile shall be uniform in thickness and accurately cut with square edges.

3B. Linotile

Tile shall be

(1) Linotile as manufactured by the Armstrong Cork Company, or

(2) first-quality material, 1/8" thick, of an oxidized oleo-resinous composition, resins, pigments, and fillers. It shall not have a supporting backing. It shall be dense but resilient, highly resistant to abrasion, and capable of withstanding heavy furniture loads up to 200 lbs. per sq. in. without exhibiting permanent indentation. Tile shall be accurately cut, with square, true edges, and uniform in thickness. The colors shall run entirely through the tile.

3C. Asphalt Tile—*Standard, Greaseproof*

Tile shall be

(1) Asphalt Tile as manufactured by the Armstrong Cork Company, or

(2) first-quality material 1/8" or 3/16" thick and composed of a thoroughly blended composition of thermoplastic binder of the asphalt and/or resinous type, asbestos fibers, pigments, and fillers. Tile shall be uniform in thickness and accurately cut, with square, true edges.

3D. Rubber Tile

Tile shall be

(1) Rubber Tile as manufactured by the Armstrong Cork Company, or

(2) first-quality material, 1/8" or 3/16" thick, and shall be homogeneous throughout. It shall consist of a properly cured rubber compound free of objectionable odors. The tile shall be capable of withstanding heavy furniture loads up to 200 lbs. per sq. in. without exhibiting permanent indentation.

3E. Cork Tile

Tile shall be

(1) Cork Tile as manufactured by the Armstrong Cork Company, or

(2) first-quality material, 3/32", 1/8", 3/16", or 5/16" thick, and made from a selected grade of pure cork, homogeneous from face to back, free from any foreign fillers and thoroughly and evenly bonded with an added heat-processed resinous binder. The tile shall be accurately cut and be uniform in thickness.

3F. Vinyl Cork Tile

Tile shall be

(1) Vinyl Cork Tile as manufactured by the Armstrong Cork Company, or

(2) first-quality material, 1/8" thick, capable of withstanding heavy furniture loads up to 75 lbs. per sq. in. without exhibiting permanent indentation. It shall be made from selected grades of pure cork, free from any foreign fillers, thoroughly and evenly bonded with an added heat-processed resinous binder, and shall have a vinyl surfacing fused to surface and beveled edges. The tile shall be accurately cut and uniform in thickness.

4. Colors, Patterns, and Sizes

a. (Always specify field and border color numbers to avoid confusion.)

(1) field colors shall be....., border colors and widths shall be....., or

(2) field and border colors and sizes shall be as shown on the Schedule of Finishes.

b. Feature strips shall be

(1) inches wide and.....(color), or

(2) as shown on the Schedule of Finishes.

5. Flash-Type Cove Base

a. Base shall be

(1) linoleum or sheet-type Corlon (specify gauge and color) with metal binding strip, end stops, corner pieces, and 7/8" wax fillet, complete.

b. Nail binding strips, end stops, and corner pieces tight to the wall with cement-coated flat head or ring groove nails. Install wax fillet strip with Armstrong S-128 Paste.

c. Base shall be (4½" or 6") high.

6. Top-Set Rubber Cove Base

a. Base shall be

(1) top-set rubber cove base as manufactured by the Armstrong Cork Company, or

(2) rubber base with molded top-set cove, preformed internal and external corners.

b. Base shall be.....in color and shall be (4" or 6") high.

7. Lining Felts

Lining felt shall be

(1) Armstrong S-149 Heavy-Duty Felt, or

(2) Armstrong S-150 Semi-Saturated Asphalt Rag Felt, or

(3) Armstrong S-950 Cushion-Eze Underlayment, or

(4) as approved by the Armstrong Cork Company.

8. Adhesives

a. For Corlon (with Armofelt Back) or Linoleum

(1) Armstrong S-128 Paste, or

(2) Armstrong S-235 Cement, or

(3) Armstrong S-214 Waterproof Cement, or

(4) as approved by the manufacturer of the flooring

b. For Corlon with Hydrocord Back

(1) Armstrong S-235 Cement.

c. For Linotile, Rubber Tile, or Custom Corlon Tile

(1) Armstrong S-130 Resilient Tile Paste, or

(2) Armstrong S-214 Waterproof Cement, or

(3) Armstrong S-104 Chemical-Set Cement or Armstrong S-235 Cement where Armstrong Rubber Tile or Custom Corlon Tile is being installed on grade level. (Do not install Linotile on or below grade.), or

(4) Armstrong S-104 Chemical-Set Cement (where Rubber Tile or Custom Corlon Tile is being installed below grade), or

(5) as approved by the manufacturer of the tile floors.

d. For Opalesq Tile

(1) Armstrong S-235 Cement over suspended subfloors. On lining felt over wood, hardboard and plywood suspended subfloors.

(2) Armstrong S-235 Cement or Armstrong S-104 Chemical-Set Waterproof Cement over on-grade concrete subfloors.

(3) Armstrong S-104 Chemical-Set Waterproof Cement over below-grade concrete subfloors.

(4) as approved by the manufacturer of the tile floors.

e. For Cork Tile or Custom Vinyl Cork Tile

(1) Armstrong S-214 Waterproof Cement.

f. For Asphalt Tile, Greaseproof Asphalt Tile, or 1/8" Excelon Tile

(1) Armstrong S-160 Emulsion, or

(2) Armstrong S-90 Cement, or

(3) Armstrong S-700 Brushing Cement, or

(4) as approved by the manufacturer of the flooring.

g. For Service Gauge Excelon Tile

(1) Armstrong S-700 Brushing Cement, or

(2) Armstrong S-90 Cement, or

(3) as approved by the manufacturer of the flooring.

h. For Cove Base

(1) Top-Set Rubber Cove Base shall be installed with Armstrong S-275 Top-Set Cove Base Cement or S-1200 Contact Bond Cement.

i. Lining felt and Cushion-Eze Underlayment shall be installed with Armstrong S-128 Paste, or Armstrong S-130 Resilient Tile Paste, or Armstrong S-235 Cement, or Armstrong S-214 Waterproof Cement.

9. Samples

a. Architect must approve samples before job starts.

b. Samples must be labeled, stating color, gauge, and location in which they are to be used, and the maker's name.

INSTALLATION

Note: *For methods of installing resilient floors over different types of subflooring—refer to pages 34-45.*

10. Subfloor

a. Lay the resilient flooring on a subfloor of.....(state type) which this contractor shall inspect before starting work.

b. Notify the architect in writing of any defects in the subfloor. Do not proceed until such defects have been corrected. Starting of work shall imply acceptance by this contractor of the subfloor.

11. Preparation

a. The subfloor will be delivered to this contractor broom clean, free of all foreign matter and thoroughly dry.

b. Fill all cracks, expansion joints, etc., in concrete subfloors with Armstrong S-190 Crack Filler.

c. Prime wood subfloors that have been sanded with one brush coat of Armstrong S-140 Floor and Wall Size.

12. Laying

a. Lay the resilient floor so as to be true, level, and even with tight joints, and in accordance with manufacturer's installation instructions.

b. Lay sheet resilient flooring at right angles to floor boards. If a seam parallels the floor boards, paste Armstrong S-96 Seam Protector directly under flooring seams and over the felt.

c. Match patterned sheet-type flooring at all seams.

d. On strip wood floors, lay all resilient tiles (except Asphalt and 1/8" Excelon Tile) diagonally to the direction of the floor boards. Keep all joints symmetrical.

e. Fit borders accurately.

f. Fit to and around all permanent fixtures.

g. Roll in two directions with 100-pound roller. (Optional for Asphalt Tile or 1/8" Excelon Tile.)

h. Clean off surplus adhesive according to manufacturer's instructions.

13. Other Subfloors

For subfloors not covered in these specifications, such as metal, magnesite, lightweight aggregate, ceramic tile, etc., write to Armstrong Cork Company, District Office, or to Lancaster, Pa., for recommendations.

14. Installing Flash-Type Cove Base

(Select suitable clauses below)

a. For concrete floors not plugged, set 5/8" diameter wood plugs at least 1" long, flush with the concrete floor for nailing end stops and corner pieces of base.

b. For concrete walls not having wood grounds, set 5/8" diameter wood plugs at least 1" long in the walls at proper height, not over 9" on center, flush with concrete for nailing binding strip, end stops, and corner pieces of base.

c. Install binding strip, end stops, and corner pieces with cement-coated flat head nails or drive screws, securing pieces flush and tight to wall and floor.

d. Install 7/8" wax fillet strip at intersection of floor and wall with Armstrong S-128 Paste.

e. Fit base sheet-type flooring to binding strip, stops, etc., and to floor. Paste with S-128 Paste. Miter corners at floor so that field or border is flush with flashed flooring.

15. Installing Top-Set Rubber Cove Base

a. Firmly cement rubber cove base to wall with Armstrong S-275 Top-Set Cove Base Cement or S-1200 Contact Bond Cement.

b. Form internal and external corners using preformed rubber cove base corners or in accordance with manufacturer's instructions. Install with Armstrong S-1200 Contact Bond Cement.

16. Stair Treads

a. Install resilient flooring on all stair treads, including top treads, landings, and platforms (specify locations).

(1) Treads must finish flush with metal nosings, or

(2) Provide and install a continuous nosing (specify kind), with top edge flush with the surface of resilient floor. Secure rigidly in place by (specify method).

17. Cleaning and Waxing

Clean all flooring thoroughly in accordance with manufacturer's maintenance recommendations.

18. Guarantee

This contractor shall guarantee that all work executed under this section of the specification will be free from defect in material and workmanship, provided any such defect is brought to the attention of the contractor in writing within one year after completion of the work. Upon such notice, the contractor shall, at his own expense, make the necessary repairs or replacements of the defective work in question. The owner shall, however, be responsible for the removal and replacement of all fixtures and equipment attached to the surface on which the work will be done.

ITEMS FOR CARPENTRY SECTION

1. General

Wood subfloors shall be brought to a smooth, even surface a sufficient distance below the finished floor level to allow for the installation of the resilient flooring.

2. Single Wood Floors

(Never install resilient flooring over single wood subfloors.)

a. (For single wood floors of tongue-and-groove boards not over 4" face width.) Cover the floor with a layer of hardboard (such as Armstrong Temboard Underlayment) or 1/4" or heavier DFPA plywood grade C (repaired) D or better, firmly nailed with cement or rosin-coated or ring-grooved nails or approved stapling equipment, spaced not more than 4" apart in both directions and at all edges. The pieces shall be not larger than 4' x 4' and laid ashlar fashion 1/32" apart, with continuous joints at right angles to floor boards. (In the case of hardboard, include: "with sanded side up.")

b. (For single wood floors not tongue-and-grooved.)

(1) Cover the floor with 25/32" kiln-dried tongue-and-groove flooring, not over 3" face, laid at an angle of 45° to the under layer. Cut end joints square, drive tight, and blind-nail with 8d cut flooring nails.

(2) Cover with 1/2" or heavier DFPA plywood, grade C (repaired) D or better.

3. Single Plywood Floors

a. Cover the joists with 5/8" 5-ply plywood such as DFPA grade C (repaired) D or better, in a size of not over 4' x 8'. Install with surface grain direction perpendicular to joists with the short joints parallel to the joists staggered. All joints parallel to joists to be centered over the joists. Install 2" x 3" or heavier cross blocks between joists under all joints of the plywood at right angles to joists. Floor joists to be not over 16" O.C. Plywood shall be face nailed at every bearing with 8d ring-grooved or rosin-coated nails, spaced at intervals of 6 inches and around perimeters at intervals of 4 inches.

b. A new type of subflooring known as 2-4-1 as specified by DFPA is suitable as a base for resilient floors when properly installed and surface-sanded.

4. Double Wood Floors

Install double wood floors (list areas). Under layer shall be ⅞″ tongue-and-groove boards not over 8″ wide. Lay boards at right angles to the joists, with the end joints square, staggered, and over bearings only. All boards shall be face nailed at each end and at every bearing with two 8d nails. Finish flooring shall be as specified in 2 above. If the finish flooring is omitted, cover the under layer as in 2 b (2).

5. Repairing Old Wood Floors

Existing floors throughout (specify areas) shall be repaired as follows: (Select clauses from (1) to (4) if existing floors are uneven and are not being leveled with floor fill).

(1) Fill cracks wider than ⅛″ and holes larger than ¼″ with plastic wood or snugly fitted wood plugs.
(2) Replace defective boards with new material.
(3) Renail boards where necessary to make secure.
(4) If the finish flooring is omitted, cover the under layer as in 2 b above.

6. Baseboards and Plinths

Extend all wood baseboards and/or plinths to the subfloor. Where flash-type cove base is specified, install wood nailing strip in the wall as specified and flush with finished walls.

7. Scraping and Sanding

Scrape and/or sand all uneven areas in the wood flooring to make suitable for application of the resilient flooring.

ITEMS FOR MASONRY SECTION

1. The surface of all concrete floors (specify areas) as well as the treads, landings, and platforms of stairs (specify location) shall be steel troweled to a smooth, even, level, hard surface, free from expansion joints, scale, or foreign deposits. The use of concrete hardeners, breaking compounds, surface hardeners, lightweight aggregates, and magnesite requires special consideration. Refer to preceding paragraph 13.
2. Concrete subfloors shall be brought to a smooth, even surface a sufficient distance below the finished floor level to allow for the installation of the resilient floor.

ITEMS FOR PLASTERING SECTION

1. (Where cove base of either type is used.) All plastering on walls (specify areas) shall be made smooth, even, and free from imperfections and shall be carried to the subfloor.

Complete Specifications Available

Complete Unabridged Specifications for all of the various Armstrong Floor, Wall, and Counter-Top Materials may be had upon request from any Armstrong Floor Division District Office.

A.I.A. File No. 23-G:

Specifications for:

Armstrong Asphalt and Excelon Tile
Armstrong Cork Tile and Custom Vinyl Cork Tile
Armstrong Sheet Vinyl Corlon with Armofelt Back
Armstrong Sheet Vinyl Corlon with Hydrocord Back
Armstrong Custom Corlon Tile
Armstrong Excelon Tile
Armstrong Linoleum
Armstrong Linotile
Armstrong Rubber Tile

A.I.A. File No. 23-L:

Specifications for:

Armstrong Vinyl Plastic Surfacing

A.I.A. File No. 23-Q:

Specifications for:

Armstrong Underlayments
Armstrong Cushion-Eze Underlayment

A.I.A. File No. 35-C-12:

Specifications for:

Armstrong Counter Tops

Specifications for walls

These Specifications Cover Installations of Armstrong Vinyl Plastic Surfacing and Armstrong Cork Tile for Walls.

BRIEF SPECIFICATIONS

Furnish and install Armstrong Cork Tile or Armstrong Vinyl Plastic Surfacing in the colors, patterns, and designs as herein specified, on the areas listed below, or where shown on the accompanying drawings. (List areas here.) All products covered by these specifications are to be installed in accordance with the latest edition of Armstrong specifications by a qualified Armstrong contractor whose bid shall include all the labor and materials required.

NOTE: *Do not install Armstrong Cork Tile or Vinyl Plastic Surfacing over walls in contact with the ground (e.g., basement walls) or in shower stalls. Armstrong Vinyl Plastic Surfacing is the only one of these wall covering materials recommended for installation in built-in bathtub recesses where there are showers. Where Vinyl Plastic Surfacing is used under these conditions, install special plastic cove material as recommended by the manufacturer.*

COMPLETE SPECIFICATION

SPECIFICATIONS FOR THE WALL COVERING CONTRACTOR

1. Work Included

The contractor shall furnish all labor and materials required to complete the wall covering work as specified.

2. Work Excluded

a. Plaster patching and repairs. (Include only when it is desired to have the work done by another contractor.)

b. Heat maintained at 70°F. and room properly ventilated.

MATERIALS

3. Wall Covering

a. Cork Tile shall be:

(1) Cork Tile as manufactured by Armstrong Cork Company, or

(2) first-quality material, $^{3}/_{32}$″ or $^{1}/_{8}$″ thick and made from a selected grade of pure cork, homogeneous from face to back, free from any foreign fillers and thoroughly and evenly bonded with an added heat-processed clear resinous binder. The tile shall be accurately cut with square, true edges and be uniform in thickness.

b. Vinyl Plastic Surfacing shall be:

(1) Vinyl Plastic Surfacing as manufactured by the Armstrong Cork Company, or

(2) first-quality material composed of vinyl resins, alkali resisting color pigments, and other plastic compounds, all thoroughly mixed to form a dimensionally stable, stain-resistant wall covering. It shall be dense, but resilient and highly resistant to abrasion. It shall be in roll or sheet form, and shall have a supporting back which resists the effects of water, alkali, and mold.

4. Adhesive

Adhesive for Armstrong Cork Tile for walls shall be Armstrong S-275 Cove Base Cement; for Armstrong Vinyl Plastic Surfacing, Armstrong S-127 Cement.

5. Samples

a. Labeled samples must be approved by the architect.

INSTALLATION

6. Installation

Install (Specify material: Armstrong Cork Tile for walls or Vinyl Plastic Surfacing) in accordance with manufacturer's installation specifications over (state whether plaster, plasterboard, or other) which the contractor shall inspect before starting the work. Notify the architect in writing of any defects in the wall. Do not proceed until such defects have been corrected.

7. Preparation of Surfaces

a. New plaster should be white coated and thoroughly dry.

b. Remove existing wall covering, paint, etc., from walls.

c. Size dusty or porous plaster and cardboard face of plasterboard with Armstrong S-140 Floor and Wall Size.

8. Metal Trim

Apply metal trim, wood molding, or resilient cap strip, if specified, at wainscot top. Install metal, resilient cap strip, or wood-crowned molding at juncture between ceiling and wall line.

9. Guarantee

The contractor shall guarantee that all work executed under this section of the specification will be free from defect in materials or workmanship, provided that any such defect is brought to the attention of the contractor in writing within one year after completion of the work. Upon such notice, the contractor shall, at his own expense, make the necessary repairs or replacements of the defective work in question. The owners shall, however, be responsible for the removal and replacement of all fixtures and equipment which might interfere with the work to be done.

ITEMS FOR THE CARPENTRY SECTION

1. Wallboard

a. Wallboard shall be.....inch thick plasterboard, or gypsum faced with smooth cardboard and shall have recessed edges for the application of tape over joints.

b. Wallboard shall be nailed to studs and cross-headers. Install headers 2 feet to 3 feet on centers between studs. Nails shall be set and holes filled. Sand smooth.

c. Size all patches and dusty and porous plaster with Armstrong S-140 Wall Size.

d. If plaster is in too poor condition to repair, remove and replace with new plaster or approved wallboard.

e. Remove existing wall covering, paint, etc., from walls.

ITEMS FOR THE PLASTERING SECTION

1. General

Walls shall be brought to a smooth, even surface free of trowel marks or other defects.

2. New Plaster

a. In rooms where Armstrong Cork Tile for walls or Vinyl Plastic Surfacing is to be installed, finish walls with a smooth, well bonded white coat.

b. Walls shall be free of "hot" spots which might tend to "burn" adhesive or wall covering.

c. Make all inside and outside corners plumb and square.

3. Old Plaster

Patch all cracks and holes and sand to a smooth, level finish when dry and hard.

NOTE: *If plaster cannot be repaired, remove and replace with new plaster.*

Federal specifications

Federal Specifications are written to establish minimum standards for purposes of competitive bidding and to insure that various government agencies will receive quality material. They do not necessarily include provision for all products or provide for products made exclusively by a single manufacturer and protected by patent laws. An example of this is Armstrong Linotile, an exclusive Armstrong flooring material unlike anything else in its classification. Some of the new plastic flooring materials also cannot be classed under a general Federal Specification because of the broad variation of materials in the market. Armstrong Floors not only meet the requirements of Federal Specifications pertaining to their classifications, but generally exceed the requirements.

Federal Specification SS-T-306b

TILE FLOOR; ASPHALT

Armstrong Asphalt Tile meets or exceeds the requirements of this Federal Specification for asphalt tile in ⅛″ and 3/16″ gauges (except Corkstyle and Spatter stylings which do not meet the requirements of paragraph 3–3).

Federal Specification SS-T-307

TILE FLOOR; ASPHALT GREASE RESISTANT

Armstrong Greaseproof Asphalt Tile meets or exceeds the requirements of this Federal Specification for grease-resistant asphalt tile in ⅛″ and 3/16″ gauges.

Interim Federal Specification L-T-751 (GSA-FSS)

TILE FLOOR; VINYL PLASTIC

(Type 1, Semi-Flexible)

Armstrong Excelon Tile meets or exceeds the requirements of this Federal Specification for vinyl plastic floor tile, semi-flexible, in 0.125″ (⅛″) gauge (except Corkstyle and Spatter stylings which do not meet the requirements of paragraph 3–3).

Interim Federal Specification L-T-751 (GSA-FSS)

TILE FLOOR; VINYL PLASTIC

(Type 2, Flexible)

Armstrong Custom Corlon Tile, Imperial Custom Corlon Tile, and Opalesq Vinyl Tile meet or exceed the physical requirements of this Interim Federal Specification for flexible vinyl plastic floor tile in 0.125″ (⅛″) gauge.

Interim Federal Specification LLL-T-00431a (c) M-NBS

TILE FLOOR; CORK

(Class 1, Cork Tile with wax, lacquer or resin finish)
(Class 2, Cork Tile with clear plastic film finish)

Armstrong Cork Tile and Armstrong Custom Vinyl Cork Tile meet or exceed the requirements for this Federal Specification for Cork Tile in various gauges in the two classes defined above.

Federal Specification ZZ-T-301a

TILE FLOOR; RUBBER

Armstrong Rubber Tile meets or exceeds the requirements of this Federal Specification for rubber tile in ⅛″ and 3/16″ gauges.

Federal Specification LLL-L-351b

LINOLEUM; BATTLESHIP

The regular colors in Armstrong Plain Linoleum meet or exceed all requirements of this Federal Specification for heavy gauge, 0.125″ (⅛″) linoleum on burlap backing.

Federal Specification LLL-L-367

LINOLEUM; PLAIN, JASPÉ AND MARBLEIZED

Armstrong Plain Linoleum, Jaspé Linoleum, Marbelle Linoleum, and Textelle Linoleum meet or exceed all requirements of this Federal Specification for heavy gauge, 0.125″ (⅛″) linoleum on burlap backing.

Federal Specification LLL-F-471

FLOOR COVERING; FELT-BACKED

(Type 1—Linoleum Composition; Class A, Roll Form, and Class B, Tile Form; Grade B and Grade C)

All Armstrong Standard Gauge (.090″) and Service Gauge (.0625″) Linoleum meets or exceeds the requirements of this Federal Specification for standard and service gauge linoleum on felt backing.

Federal Specification LLL-L-354

LINOLEUM; DESK TOP

Armstrong Desk Top Linoleum meets or exceeds the requirements of this Federal Specification for desk top linoleum.

NO FEDERAL SPECIFICATIONS

No federal specifications have been evolved for the following materials:

Armstrong Corlon (vinyl plastic sheet-form flooring with Armofelt or Hydrocord Back)

Armstrong Linotile (homogeneous floor tile, oil-bonded)

Armstrong Plastic Surfacing

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COLOR VALUES

For accurate color matching, it is recommended that actual samples of material be used. Because of color printing limitations, we cannot guarantee exact duplication of color values shown in this book with those of the actual goods.

RESEARCH



STYLING



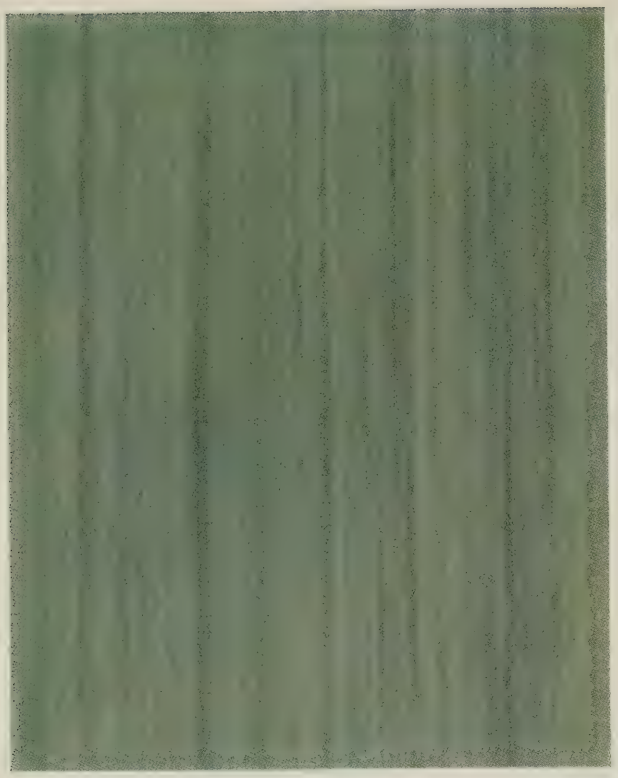
MANUFACTURIN





LINOLEUM

No resilient flooring material has enjoyed such continued popularity and wide usage as Armstrong Linoleum. Long a high-style product, providing unusual opportunities for custom-styling effects, linoleum combines a wide variety of colorings, stylings, and textures to meet every decorative need. Because it comes in 6-foot widths in rolls up to 90 feet long, it can be put down with a minimum of dirt-catching seams. Moreover, the dimensional stability of linoleum keeps seams tight. This, coupled with close compatibility with floor waxes, results in economically sustained glossiness and cleanliness over many years. Reasonable cost and long life coupled with modern styling perpetuate the demand for linoleum on suspended subfloors despite the advent of newer and different types of resilient floors.



1 Apple Green — heavy (1/8") gauge



4 Light Taupe — heavy (1/8") gauge



13 Driftwood Gray — heavy (1/8") gauge



16 Malay Brown — heavy (1/8") gauge

Armstrong JASPÉ LINOLEUM

2 yards wide

Approximately 1/3 actual size



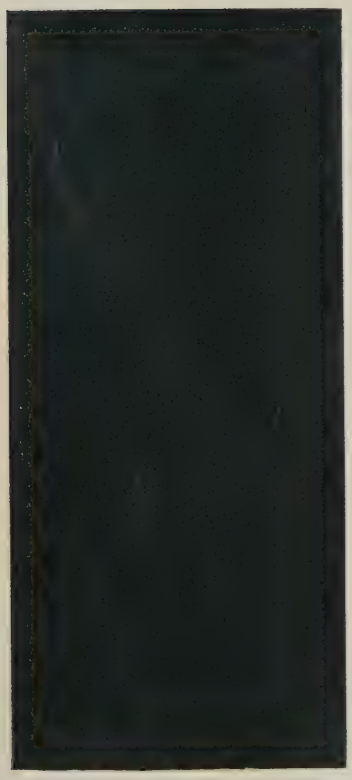
Blond Tan 415



Mist Green 416



Brown 420



Green 421



Gray 426

Armstrong Desk Top Linoleum is made for use on desks, tables, counters, and other work areas.

Armstrong Desk Top Linoleum has a satin-smooth finish especially developed for use on these areas. In addition, all patterns except Brown No. 420 are lacquered, which makes Desk Top Linoleum easy to keep clean.

Armstrong Desk Top Linoleum is made in five colors—three plain patterns and two Jaspé stylings. The Jaspé patterns are pastel in color and are made to combat eye fatigue. Armstrong Desk Top Linoleum is made in rolls 2 yards wide. It is .080″ in thickness and has a cotton backing.

Armstrong DESK TOP LINOLEUM

2 yards wide



20 Brown — heavy (1/8″) and standard gauge



21 Evergreen — heavy (1/8″) and standard gauge



22 Dark Gray — heavy (1/8″) gauge



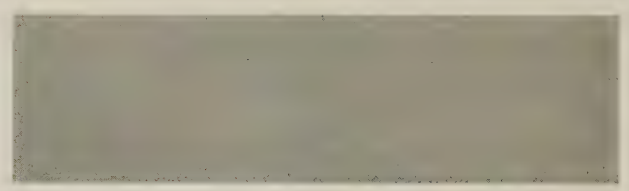
25 Terra Cotta — heavy (1/8″) gauge



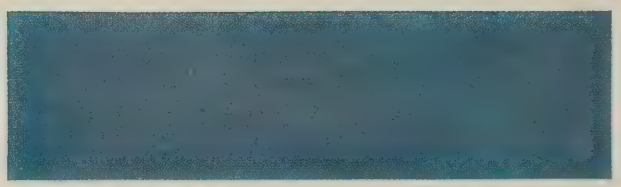
27 Black* — heavy (1/8″) and standard gauge



23 White — heavy (1/8″) and standard gauge



24 Pearl Gray — standard gauge



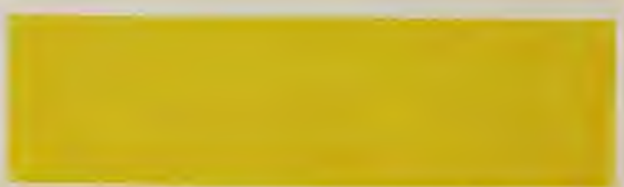
34 Cerulean Blue — standard gauge



39 Chinese Red — standard gauge



45 Fawn — standard gauge



48 Canary Yellow — standard gauge

Armstrong Plain Linoleum is distinguished by its smooth, even surface and deep uniform coloring. It is often used when a striking single or contrasting color effect is desired; but more frequently it is used for special single color insets, feature strips, or borders to accent other types of linoleum floors. It is made in the five regular or "battleship" colors shown above and in six special colors shown in the right hand column. The special colors are slightly higher in price than the regular colors.

Armstrong Plain Linoleum is available in one-inch-wide Linostrips in all colors and gauges listed, with the exception of Chinese Red No. 39, which is offered in both standard gauge and 1/8″ Linostrips. Border material in 6″, 9″, and 12″ widths is available only in Plain Black Linoleum 27 and in black Marbelle Linoleum 021. In addition, border material in any width ranging from 3″ to 24″ can be furnished to order in any available color or gauge of Plain, Jaspé, Marbelle, and Spatter Linoleum in rolls measuring up to thirty feet in length.

Armstrong PLAIN LINOLEUM

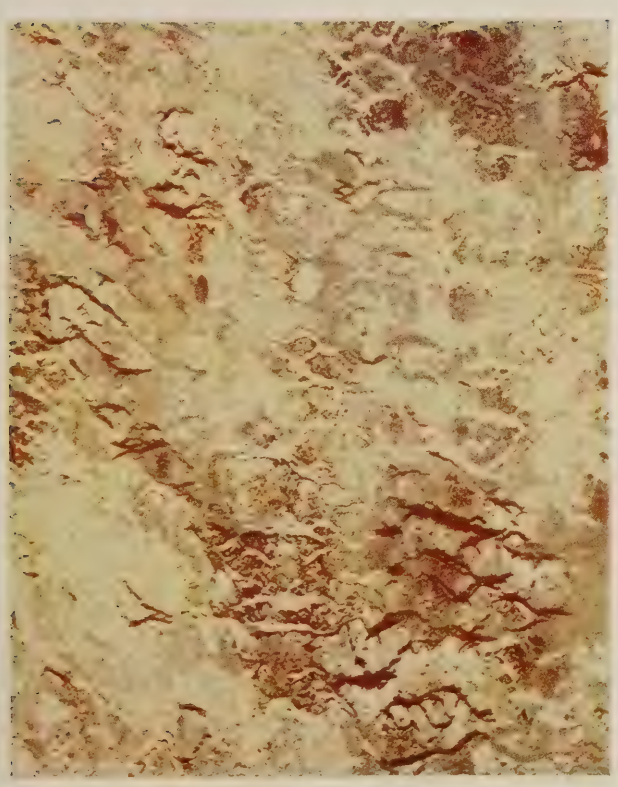
2 yards wide and 1″ Linostrips
*also made in border material 6″, 9″, and 12″ wide



standard and service gauge 03



heavy (1/8"), standard, and service gauge 08



heavy (1/8"), standard, and service gauge 09

Armstrong Marbelle features an unusual swirl marbleization which is both functional and decorative. The swirl pattern tends to conceal tracked-in dust and dirt until the floor can be cleaned by sweeping or damp mopping. The muted all-over graining makes it ideal for a wide variety of decorative treatments in residential and commercial interiors.

Armstrong Marbelle Linoleum is well suited for custom-designed floors. It forms a perfect background for insets of all types featuring other stylings of linoleum. Each coloring in the Marbelle line is especially designed so that it can be used with other Marbelle colorings. Striking floor effects are possible by using two or more colorings in one area.

Armstrong Marbelle Linoleum also offers the same practical advantages characteristic of the other stylings in Armstrong Linoleum. It is completely greaseproof, and for this reason is highly recommended for use in kitchens and dining rooms. The smooth, virtually seamless surface of this flooring is easy to keep looking neat and clean.

Armstrong MARBELLE LINOLEUM

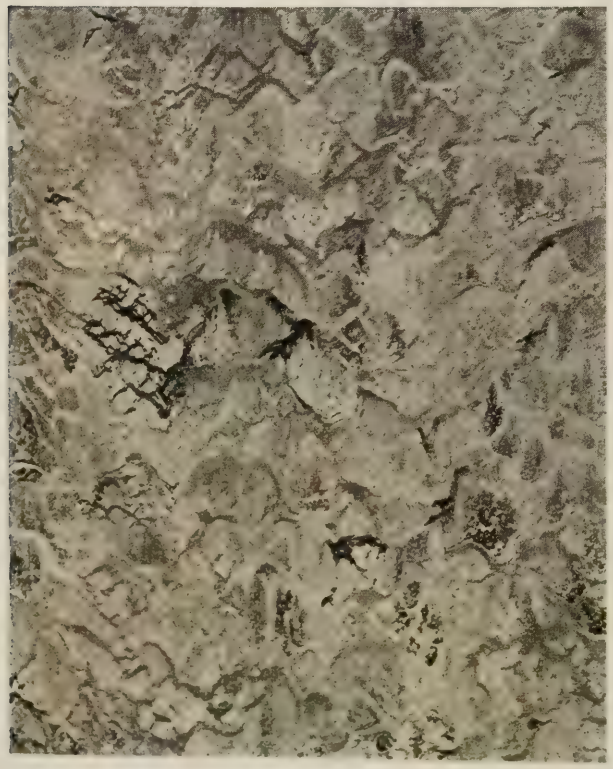
2 yards wide
Approximately 1/3 actual size



014 heavy (1/8″), standard, and service gauge



015 standard and service gauge



018 heavy (1/8″) gauge



021 heavy (1/8″)*, standard*, and service gauge

Armstrong MARBELLE LINOLEUM

2 yards wide
*also made in border material 6″, 9″, and 12″ wide
Approximately 1/3 actual size



standard and service gauge

029



heavy (1/8″), standard, and service gauge

030



heavy (1/8″) gauge

036



standard and service gauge

042

Armstrong MARBELLE LINOLEUM

2 yards wide
Approximately 1/3 actual size



1550

heavy (1/8") gauge



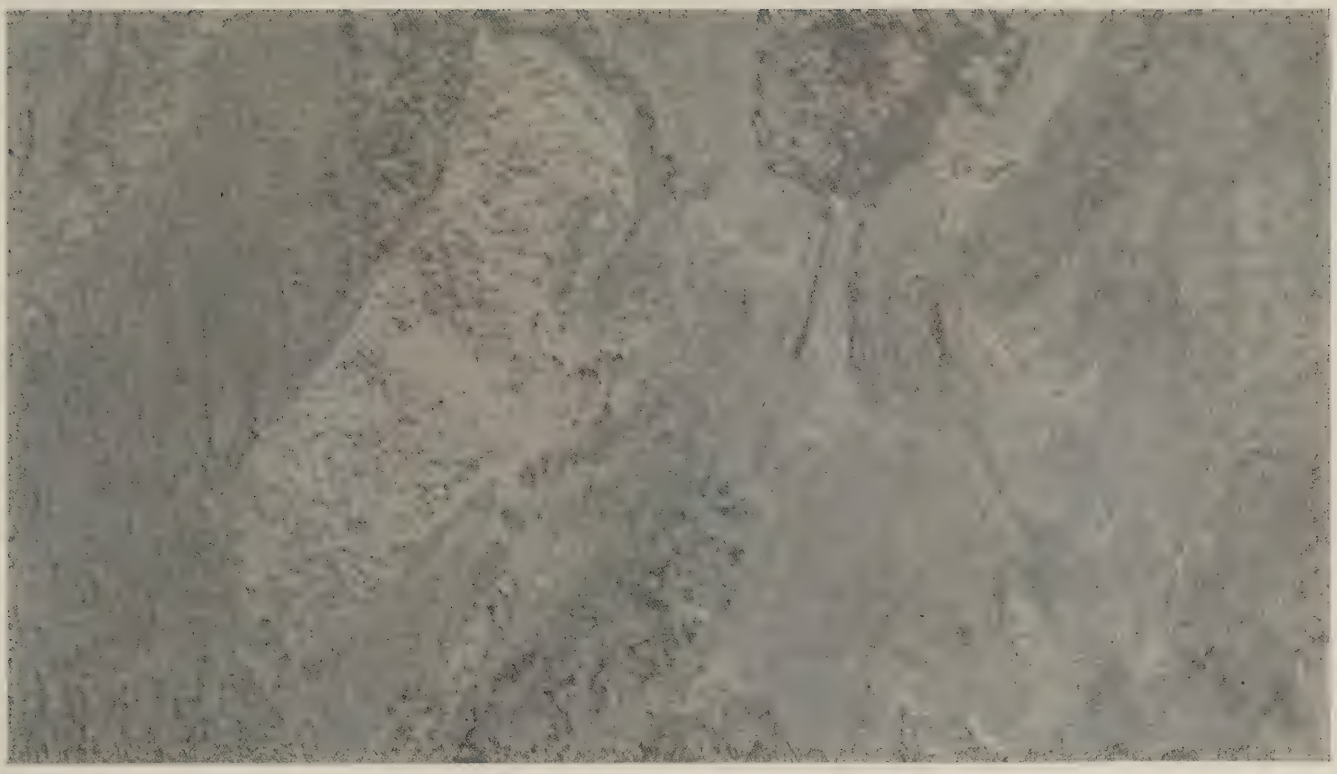
1551

heavy (1/8") gauge

Armstrong TEXTELLE LINOLEUM

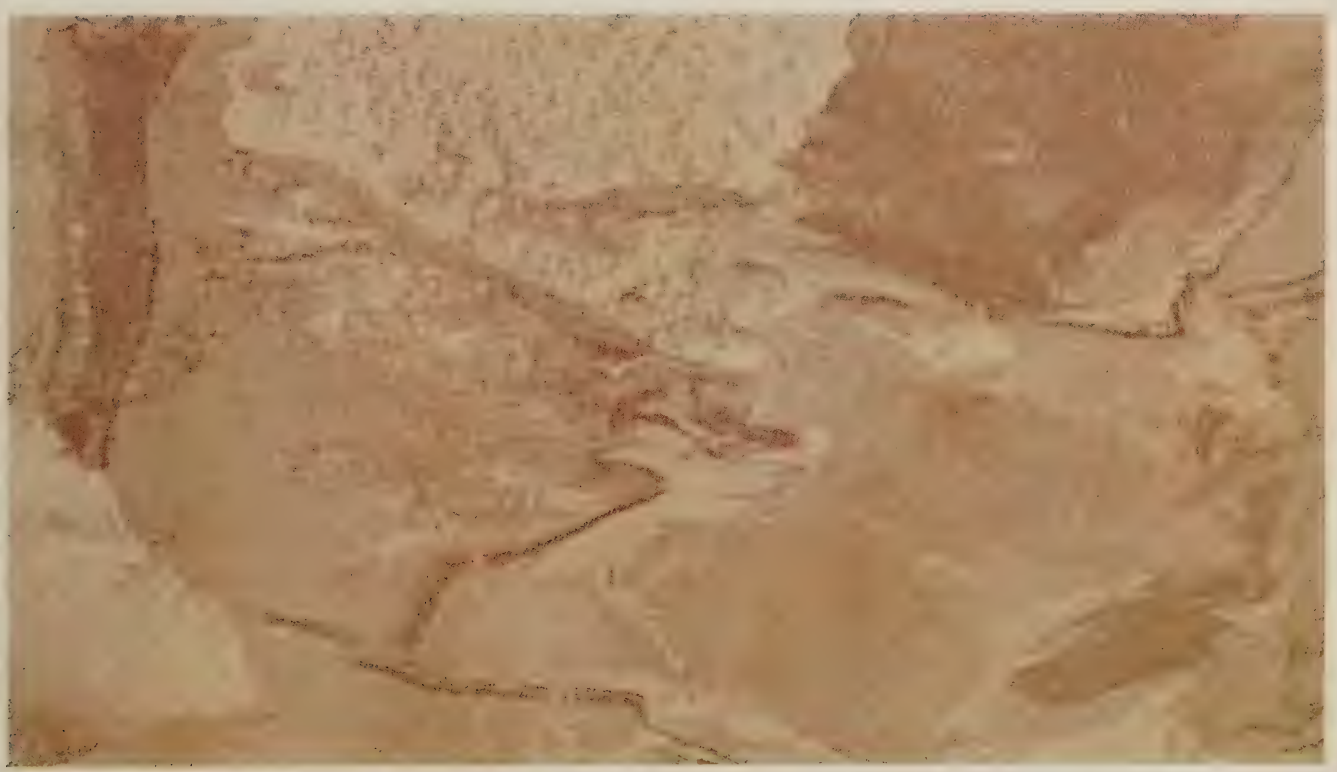
2 yards wide

Approximately 1/3 actual size



heavy (1/8") gauge

1552



heavy (1/8") gauge

1553

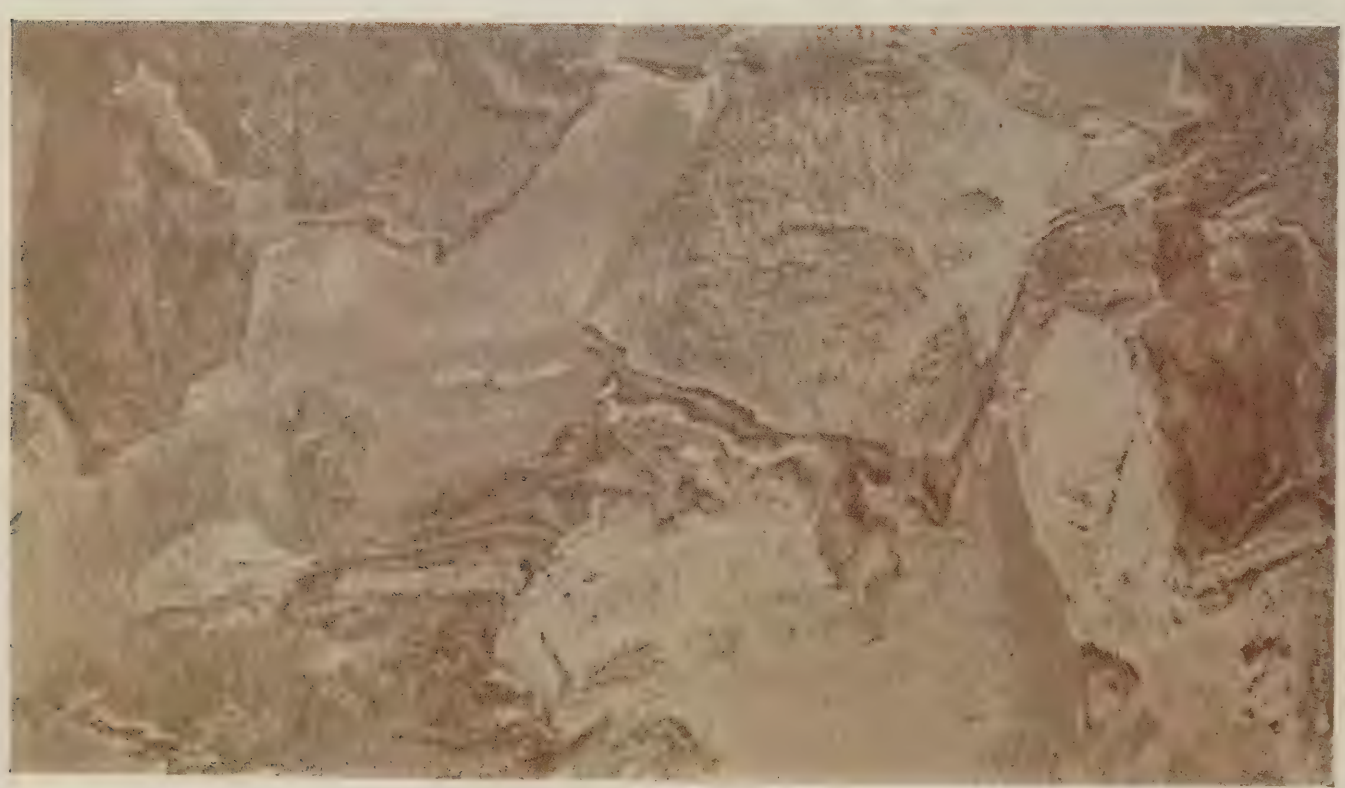
Armstrong TEXTELLE LINOLEUM

2 yards wide
Approximately 1/3 actual size



1554

heavy (1/8″) gauge



1555

heavy (1/8″) gauge

Armstrong TEXTELLE LINOLEUM

2 yards wide
Approximately 1/3 actual size

heavy (1/8") gauge

1556

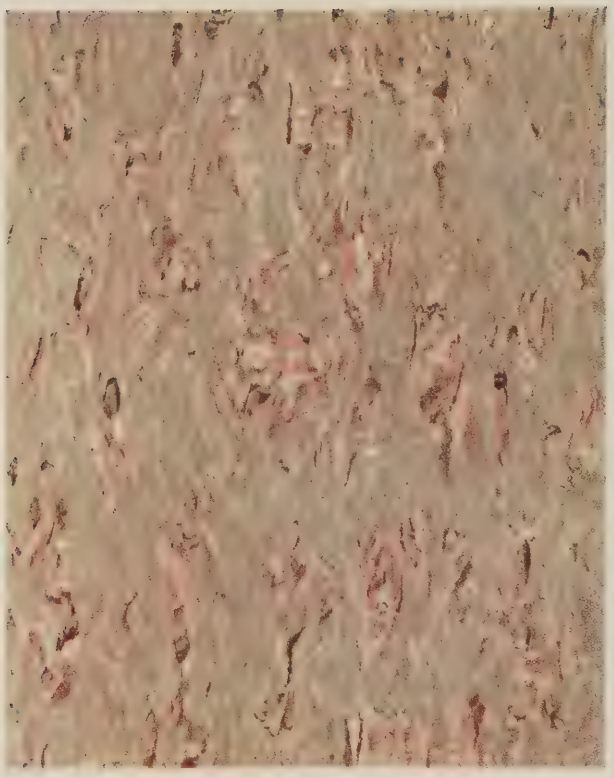
Approximately 1/3 actual size



Textelle Linoleum makes a beautiful base for area rugs. In addition, this handsome floor provides an over-all floor effect during summer months.

Armstrong TEXTELLE LINOLEUM

2 yards wide



1600 heavy (1/8") and standard gauge



1601 heavy (1/8") and standard gauge



Armstrong Imperial Linoleum offers a different treatment of small-scale floor design. Its unique appearance is created by thousands of small chips of color in an unusual burl-like design. A subtle, yet distinct contrast is achieved by the arrangement of different tones of color on a richly colored field. Imperial Linoleum is suitable for large and small areas and presents numerous custom-design opportunities. Floor above is Style 1606 with Insets of Plain Brown No. 20.

Armstrong IMPERIAL LINOLEUM

2 yards wide
Approximately 1/2 actual size



heavy (1/8") and standard gauge

1602



heavy (1/8") and standard gauge

1603



heavy (1/8") and standard gauge

1604



standard gauge

1605

Armstrong IMPERIAL LINOLEUM

2 yards wide
Approximately 1/2 actual size



1606 standard gauge



1607 standard gauge



1608 standard gauge



Where underfoot comfort and quiet are of prime consideration, Armstrong Cushion-Eze Underlayment offers unique advantages. Depending on the subfloor construction, it greatly reduces or eliminates conductance of noise to rooms below. The natural resiliency of linoleum and other Armstrong floors is augmented by millions of minute air bubbles in the layer of foam. Armstrong Cushion-Eze Underlayment is discussed more fully on pages 18 and 27.

Armstrong IMPERIAL LINOLEUM

2 yards wide
Approximately 1/2 actual size



standard gauge 1650



standard gauge 1651



standard gauge 1652



standard gauge 1653

Armstrong DECORELLE LINOLEUM

2 yards wide
9″ x 9″ tile in standard and service gauge
Approximately 1/3 actual size



1654 standard gauge



1655 standard gauge



1656 standard gauge



1657 standard gauge

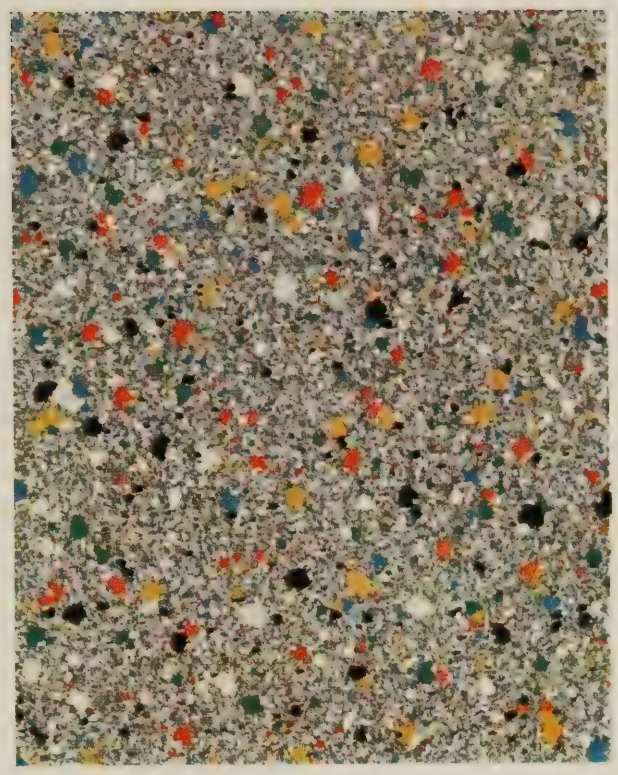
Armstrong DECORELLE LINOLEUM

2 yards wide
9″ x 9″ tile in standard and service gauge
Approximately 1/3 actual size



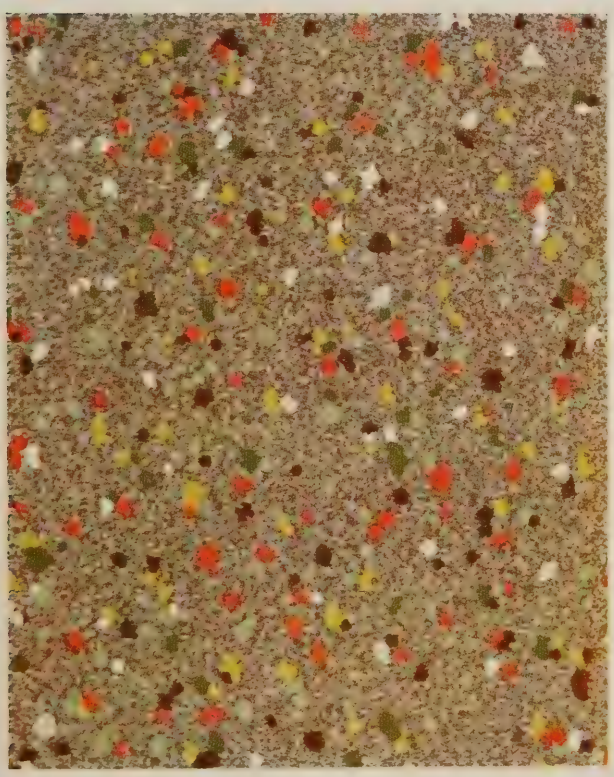
standard gauge

Fiesta White 5000



standard gauge

Granada Gray 5004



standard gauge

Toledo Taupe 5014



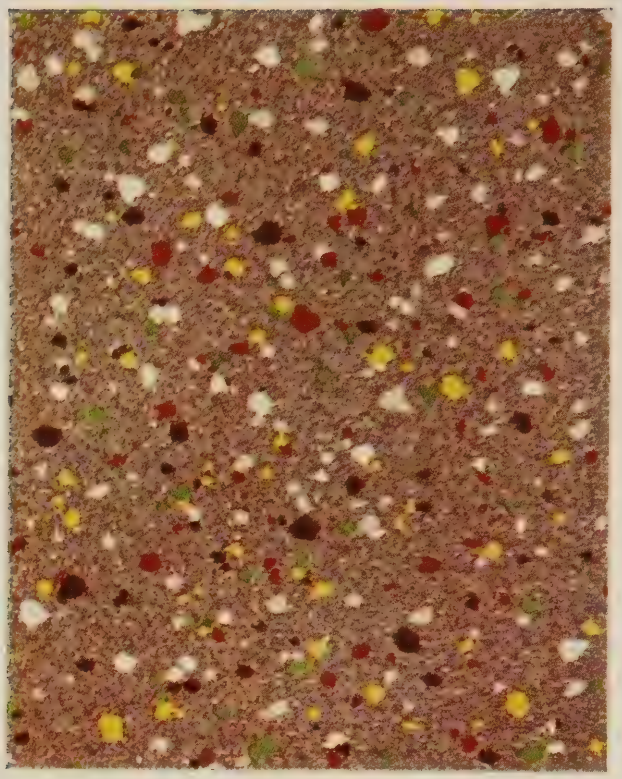
standard gauge

Malaga Green 5019

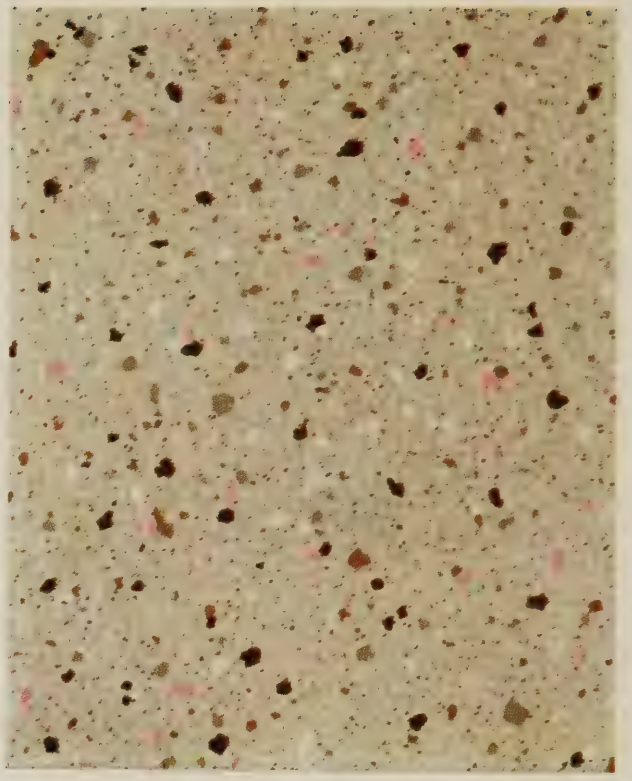
Armstrong SPATTER LINOLEUM

2 yards wide

Approximately 1/4 actual size



5022 Culebra Copper — standard gauge



5025 Sevilla Sand — standard gauge



5026 Madrigal Taupe — standard gauge



5028 Coruna Gray — standard gauge

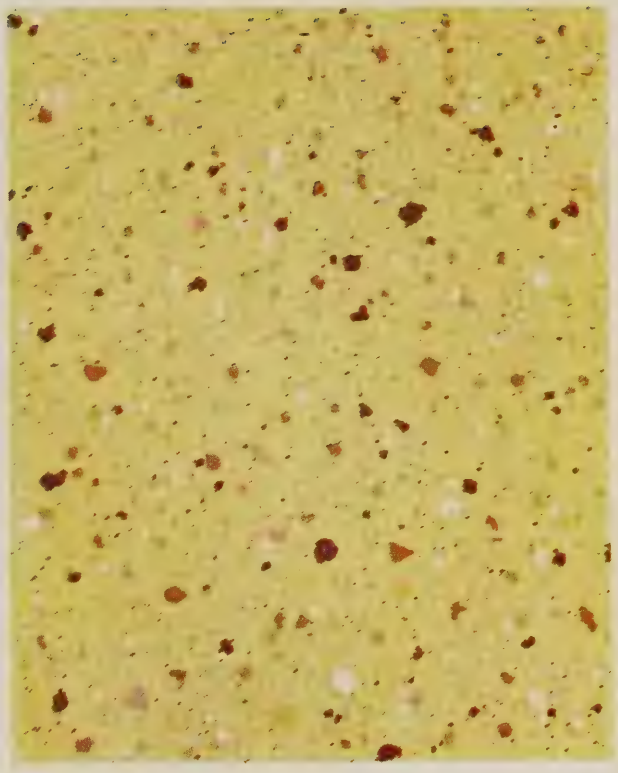
Armstrong SPATTER LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

Castilla Ivory 5029



standard gauge

Arroyo Yellow 5030



standard gauge

Tortosa White 5031



standard gauge

Nevada Beige 5032

Armstrong SPATTER LINOLEUM

2 yards wide
Approximately 1/4 actual size



5160

standard gauge

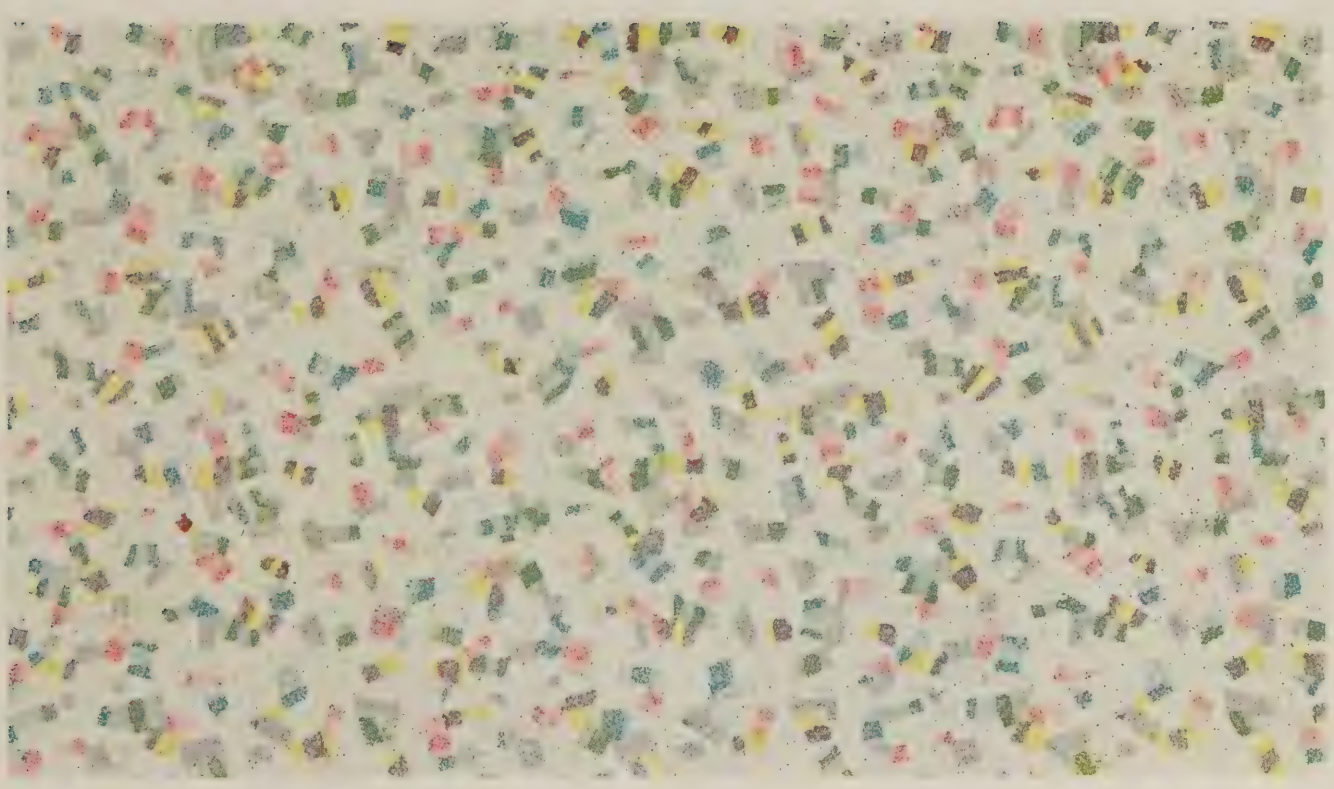


5161

standard gauge

Armstrong CRAFTLINE INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

5170



standard gauge

5171

Armstrong CRAFTLINE INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



5180 standard gauge



5181 standard gauge

Armstrong CRAFTLINE INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



Armstrong Craftline Linoleum features a soft textured appearance that adds to the attractiveness of any decorative scheme. Its smart designs are made up of appealing pastel colors that complement today's drapery, upholstery fabrics, and wall finishes. The colors are molded or inlaid to the back of the material for lasting beauty.

The partial view of this modern kitchen-dining room illustrates one of the many ways Craftline Linoleum can be used to set the stage for the interior design. The soft predominant shade of blue in its textured field is carried to the walls in a slightly deeper shade. The polka-dot theme of the floor design is also carried out in the grillwork of the unique open-type swinging doors that separate the kitchen from the dining area.

Armstrong Craftline Linoleum, like all other types of Armstrong Linoleum, is grease resistant and fade resistant, long wearing and easy to keep clean and neat. While most effective as an allover floor, Craftline Linoleum offers opportunities to create novel custom effects, especially with insets of Plain Linoleum.



In areas where people work on their feet, and where foot traffic is inclined to be noisy, Armstrong Cushion-Eze Underlayment adds extra comfort and quietness to resilient floors. Its millions of tiny air bubbles cushion and quiet every step, creating more satisfactory conditions for workers, a better impression on the public. Cushion-Eze helps make floor cleaning easier, too, since it allows the resilient flooring to "give" gently underfoot so that dirt cannot become ground in. Indentation resistance is not decreased, as might be expected, because of the immediate recovery of the springy foam.

Armstrong CRAFTLINE INLAID LINOLEUM

2 yards wide



5300

standard gauge



5310

standard gauge

Armstrong EMBOSSED INLAID LINOLEUM

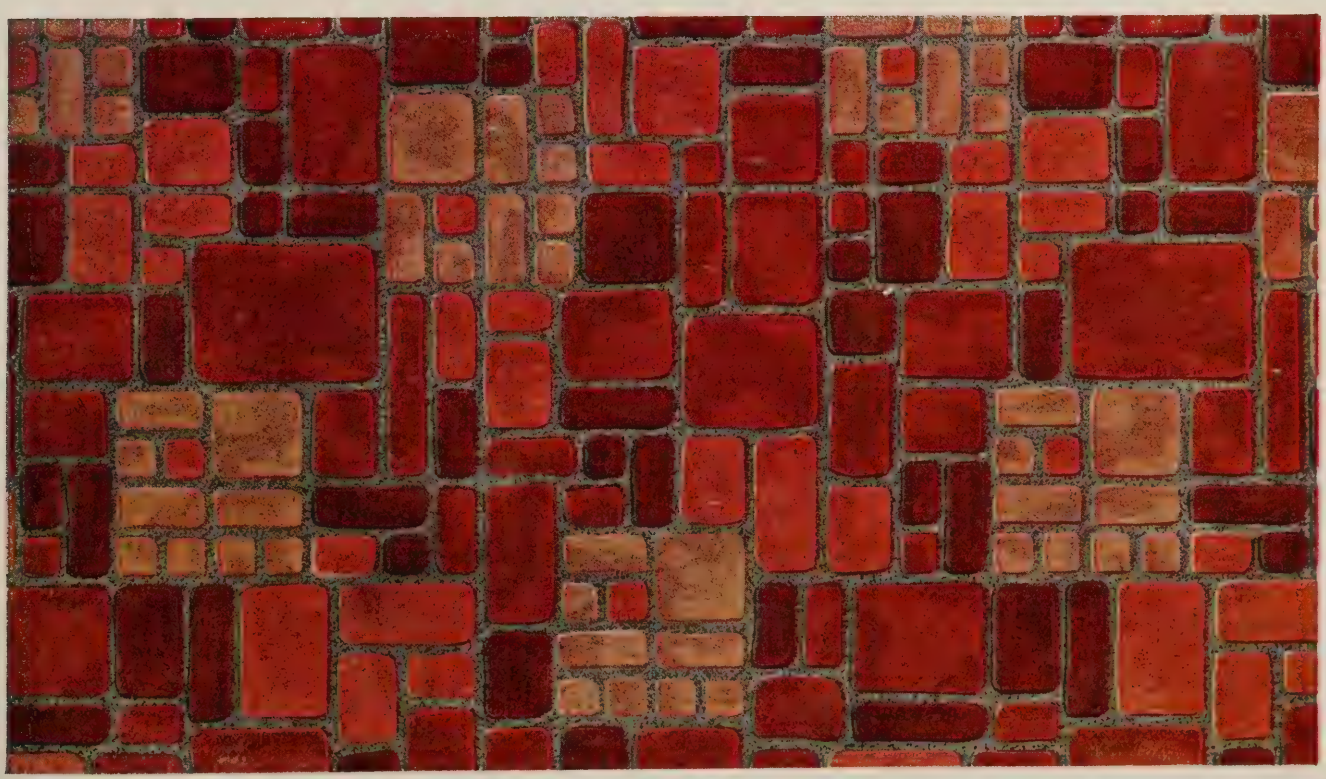
2 yards wide

Approximately 1/4 actual size



standard gauge

5351

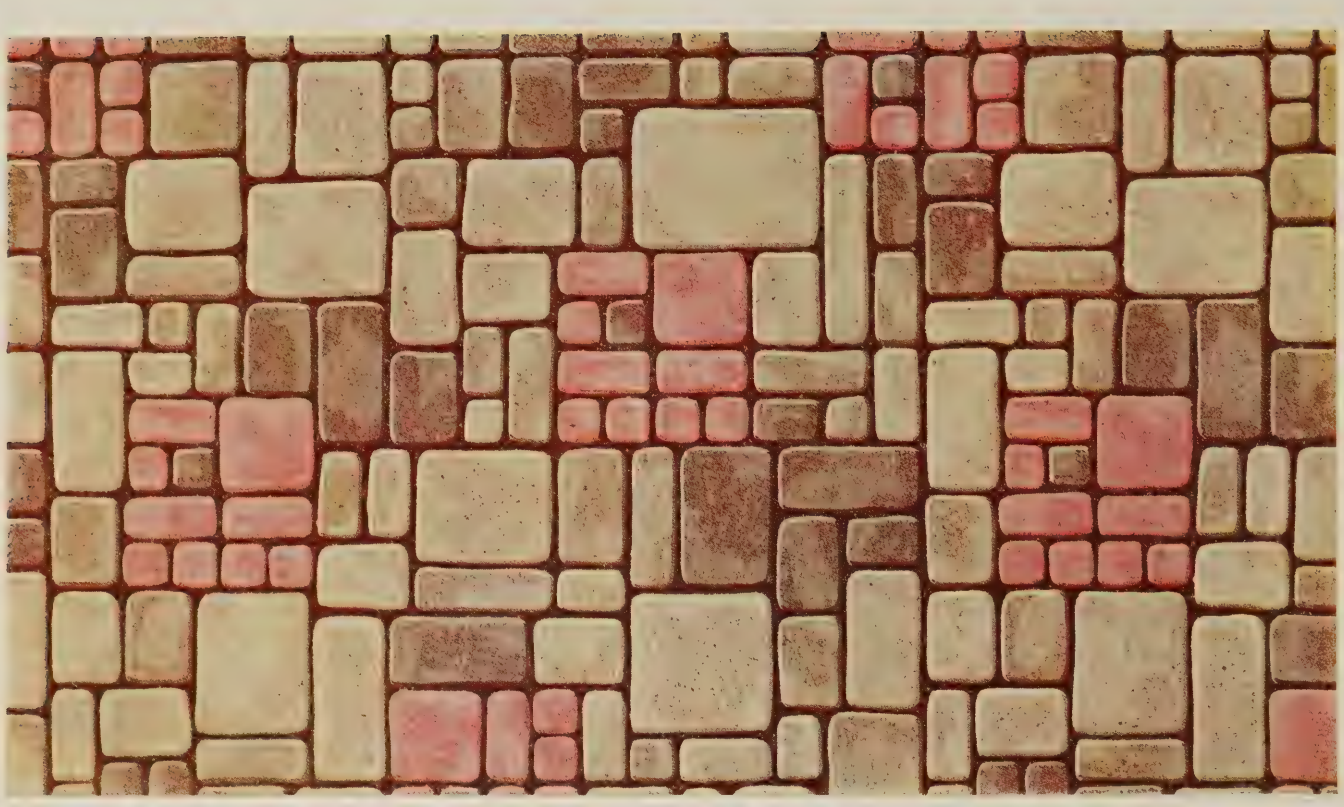


standard gauge

5352

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



5353

standard gauge

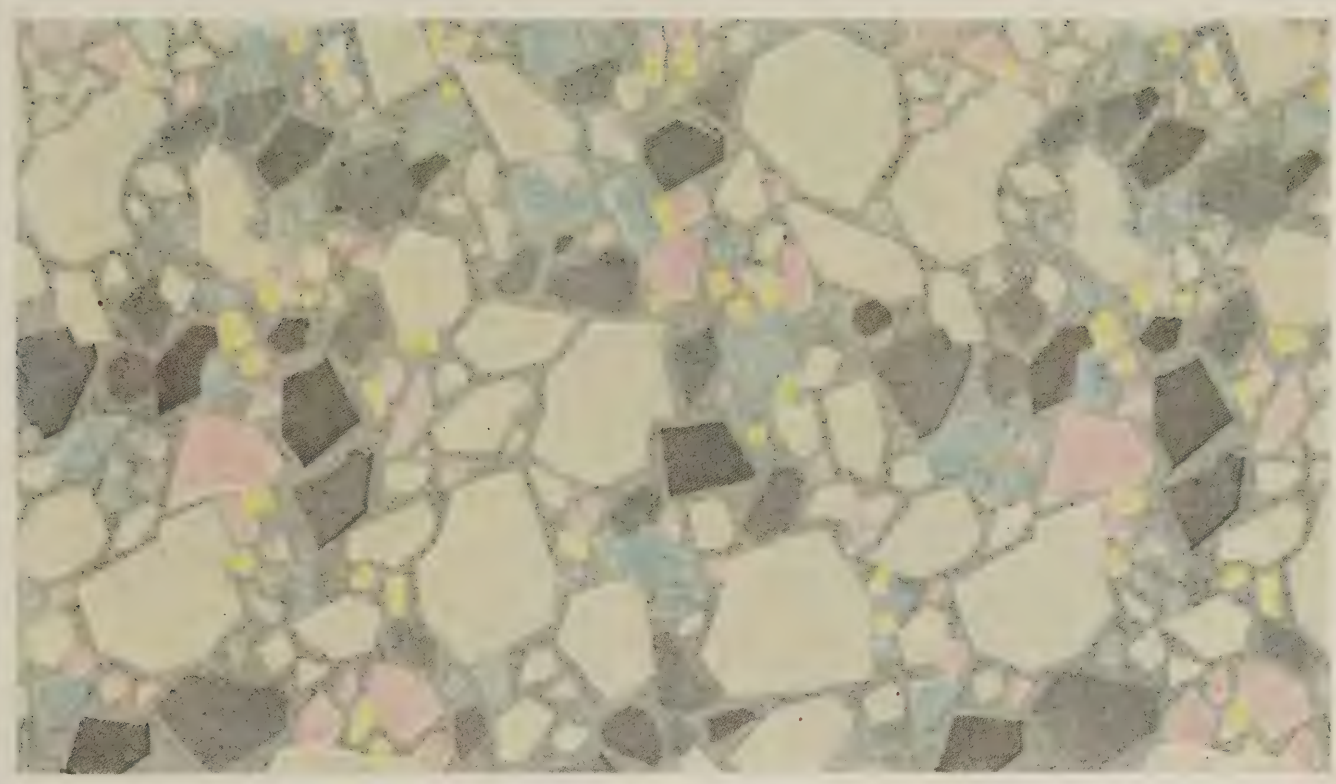


5390

standard gauge

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

5394



standard gauge

5501

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



5510

standard gauge

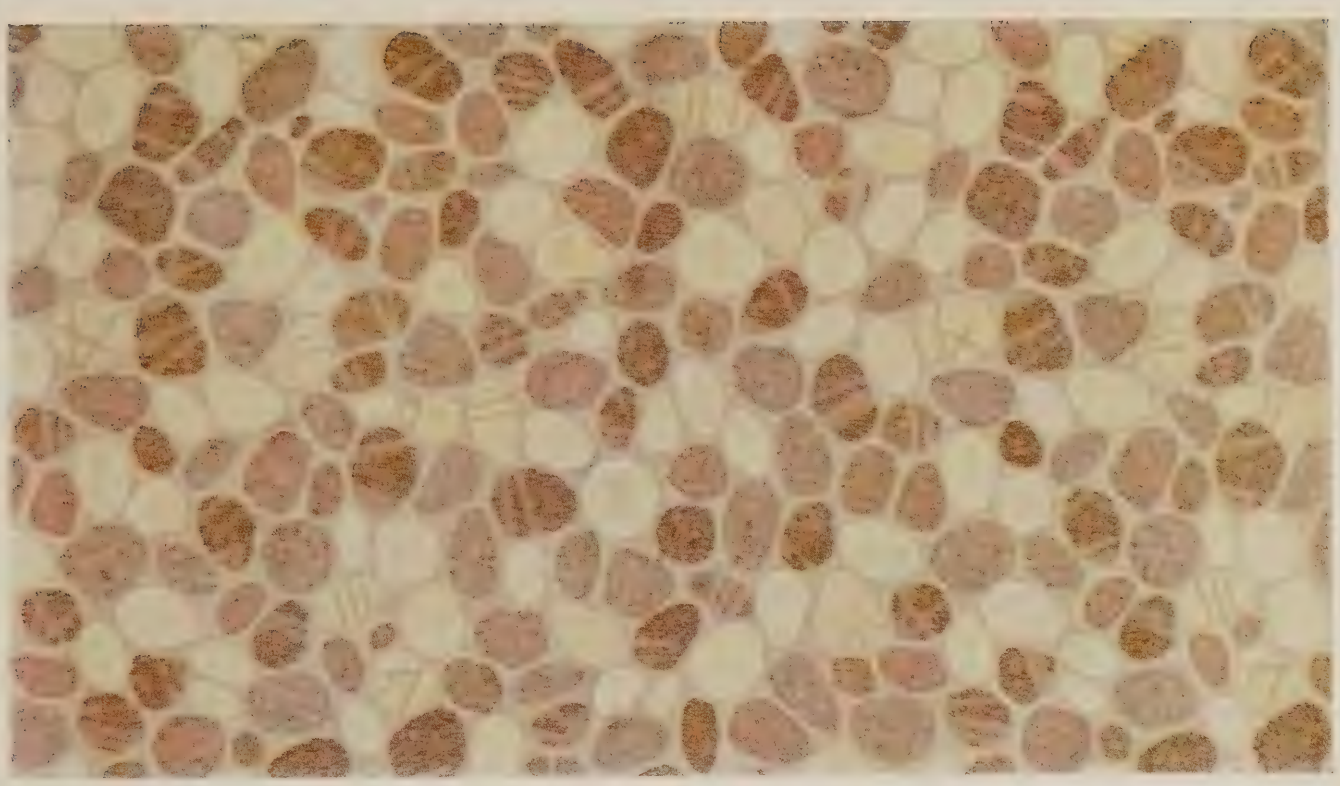


5511

standard gauge

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

5512

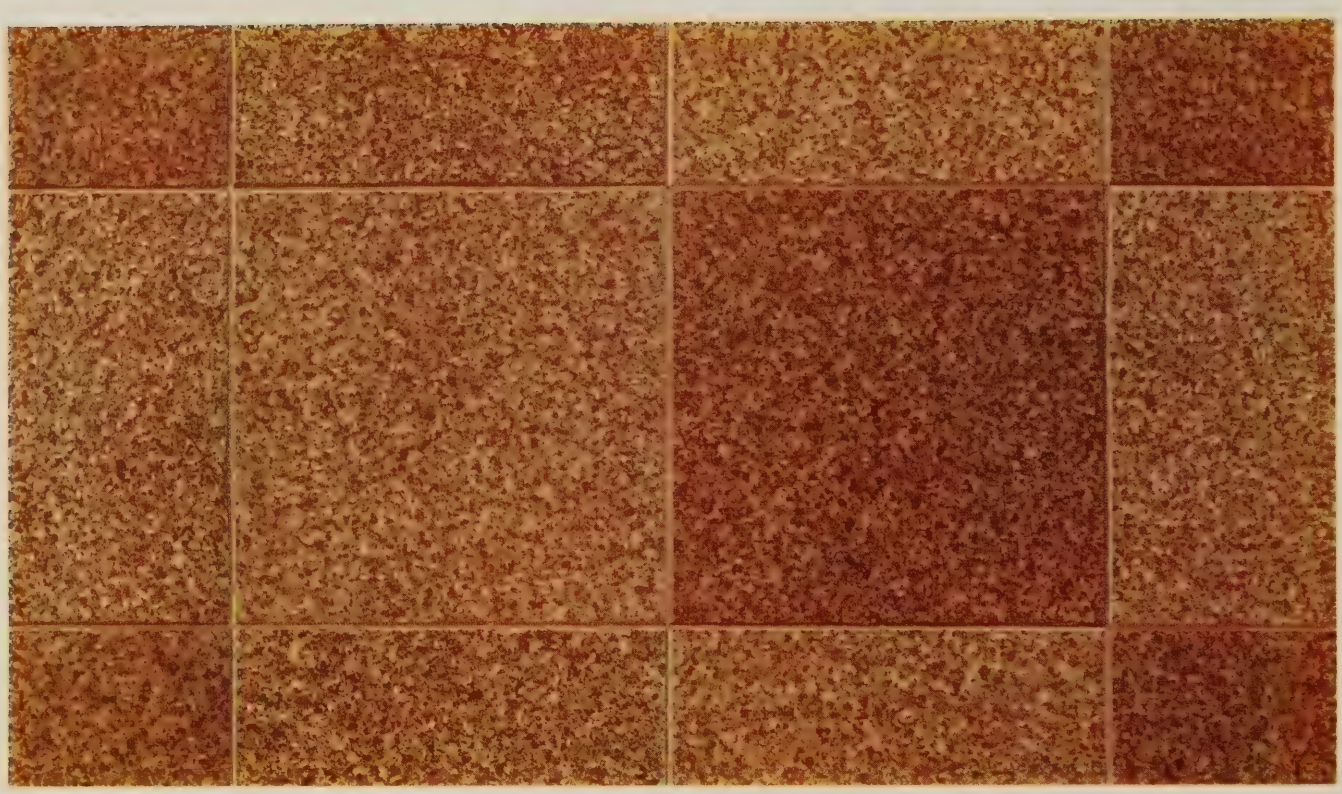


standard gauge

5513

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



5530

standard gauge



5540

standard gauge

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

5541



standard gauge

5570

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



5571

standard gauge



5580

standard gauge

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

5581



standard gauge

5590

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



5591 standard gauge



5600 standard gauge

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

5601



standard gauge

5610

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



5611 standard gauge



5620 standard gauge

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size



standard gauge

5621





Armstrong Cushion-Eze Underlayment can be installed directly over most types of old resilient floors. It makes remodeling faster, less inconvenient and less costly since there is no need to rip up the existing floor, sand the subfloor or put down hardboard. Cushion-Eze also hides minor irregularities in subfloors. It takes the place of conventional lining felt and requires no special adhesives.

Old world charm and modern comfort are coupled together in this kitchen using Embossed Linoleum Style 5571 with Armstrong Cushion-Eze Underlayment.

Armstrong EMBOSSED INLAID LINOLEUM

2 yards wide
Approximately 1/4 actual size

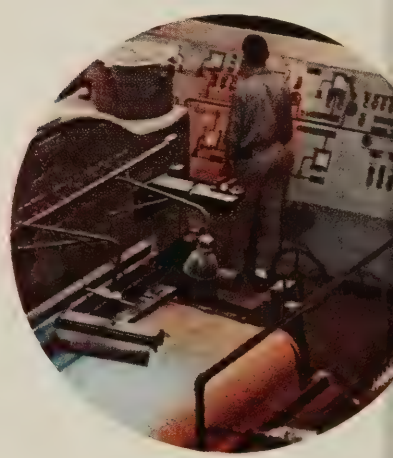
RESEARCH



STYLING



MANUFACTURIN



Armstrong

PLASTICS

Armstrong Vinyl Corlon offers the unusual beauty and depth of color made possible through the use of the highest quality vinyls and pigments. Due to its thermoplastic nature, vinyl can be processed into particles of almost any shapes and made to retain those shapes. The use of practically colorless vinyl as a binder permits pigments to show in superior clarity and brilliance. And the vinyl affords better protection to the pigments from chemicals and other harmful substances. The Tessera and Decoresq Series in Armstrong Vinyl Corlon are available with Armstrong Hydrocord Back, permitting the use of 6-foot sheet material below grade and on grade, as well as above grade, for the first time. Additional Armstrong plastic floors, Excelon, Custom Corlon, and Opalesq, are illustrated in the Resilient Tile Section starting on page 115.



6180



6181



6182



6183

Armstrong GRANETTE CORLON

2 yards wide and 1″ feature strips
Also in 9″ x 9″ tile
Approximately 1/2 actual size



6184



6185



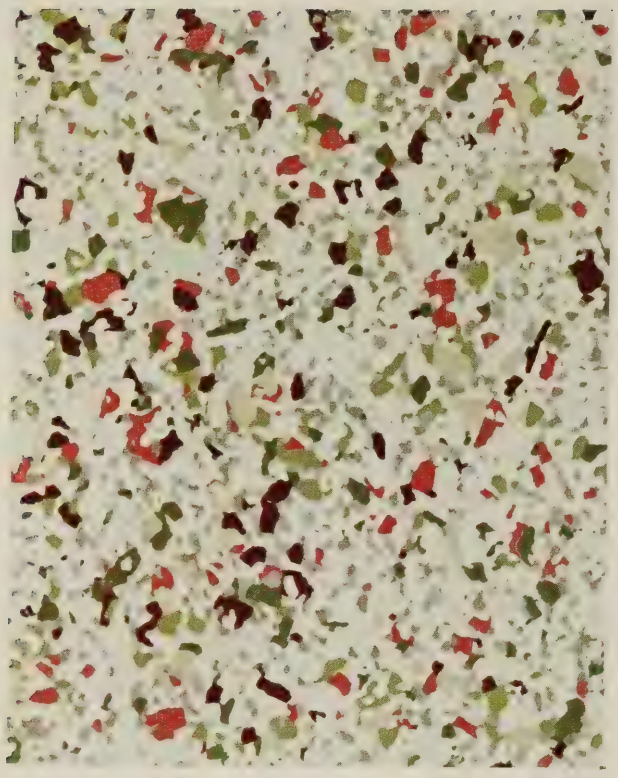
6186



6187

Armstrong GRANETTE CORLON

2 yards wide and 1″ feature strips
Also in 9″ x 9″ tile
Approximately 1/2 actual size



6200



6202



6204



6205

Armstrong TERRAZZO CORLON

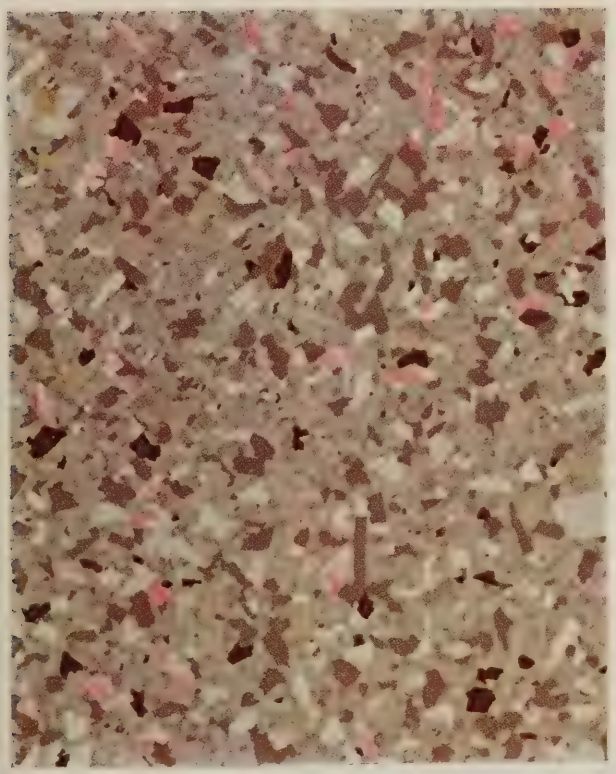
2 yards wide
Approximately 1/2 actual size



6208



6212



6213



6214

Armstrong TERRAZZO CORLON

2 yards wide
Approximately 1/2 actual size



6216



6218



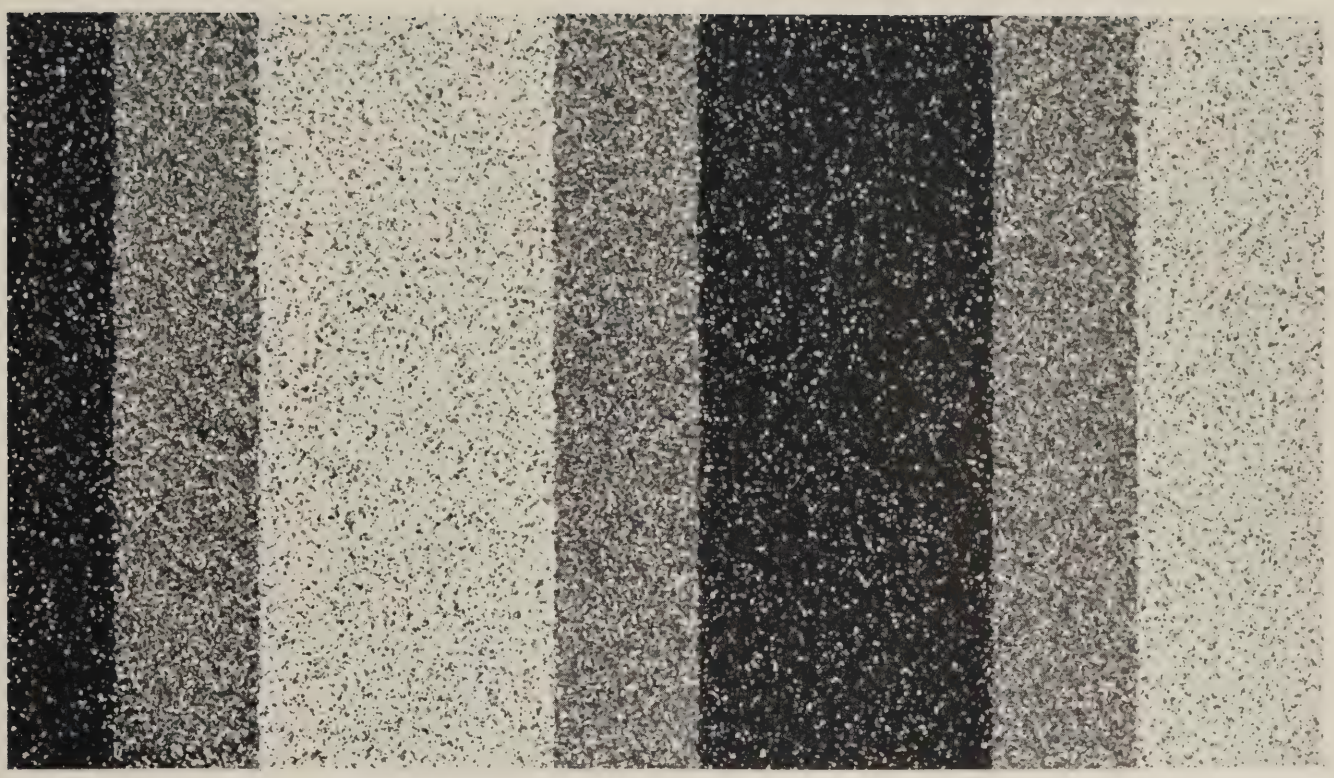
6219



As an underlayment, Cushion-Eze serves to quiet the noise of footsteps with its springy layer of foam. The fact that it "gives" underfoot makes cleaning less of a problem. Dirt doesn't become ground in, sweeps away easily. For the same reason, floors installed over Cushion-Eze won't scratch or mar so easily as those installed over lining felt. Cushion-Eze doesn't change a floor's resistance to indentation.

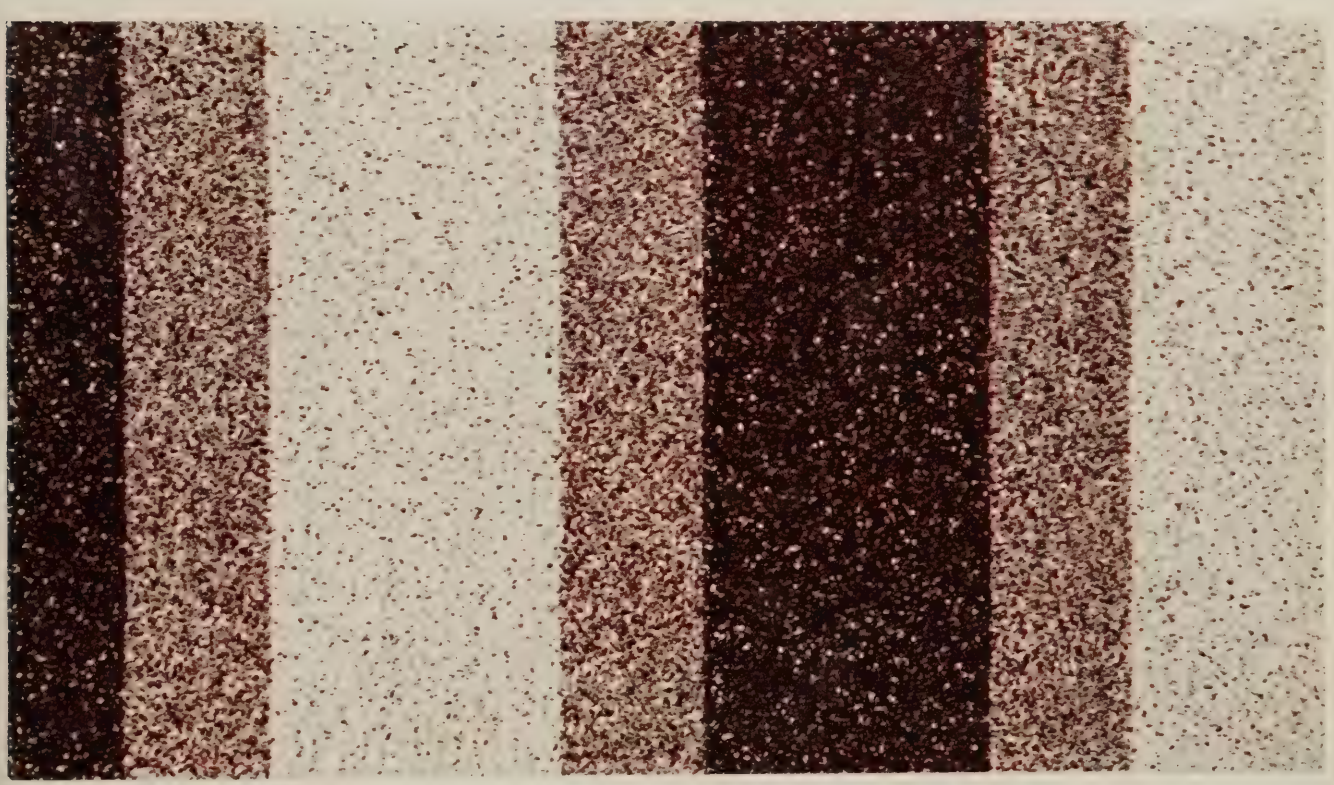
Armstrong TERRAZZO CORLON

2 yards wide
Approximately 1/2 actual size



6300
Armofelt Back

86300
Hydrocord Back



6301
Armofelt Back

86301
Hydrocord Back

Armstrong DECORESQ CORLON

2 yards wide
Approximately 1/4 actual size



6502



6503



6505



6506

Armstrong MOSAIC CORLON

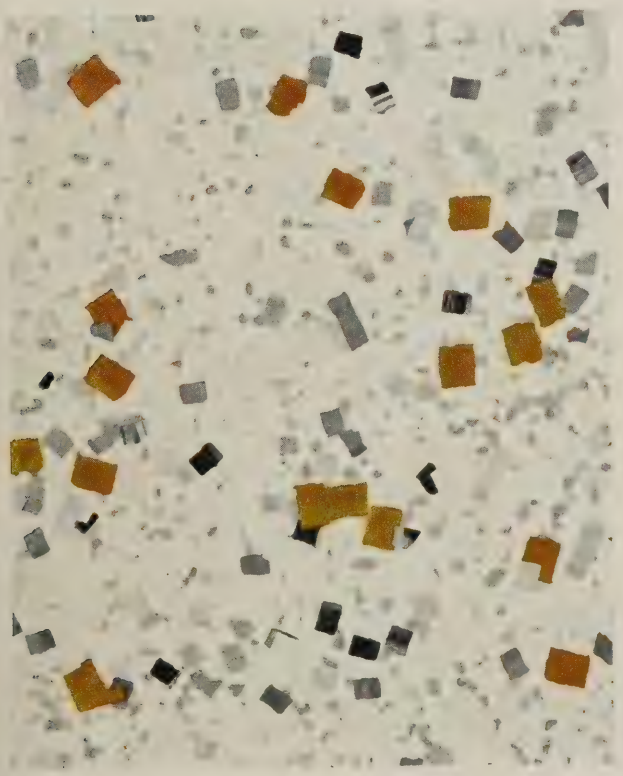
2 yards wide
Approximately 1/2 actual size



6508



6510



6512



6513

Armstrong MOSAIC CORLON

2 yards wide
Approximately 1/2 actual size



6514



6515



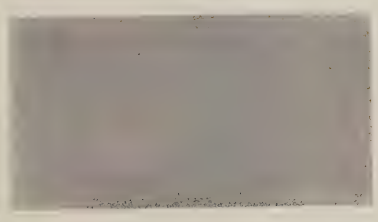
This kitchen features Mosaic Corlon Style 6503. Note how the multicolor floor design serves as a background to the attractive cabinet color scheme.

Armstrong MOSAIC CORLON

2 yards wide
Approximately 1/2 actual size



6130



6131



6132



6133

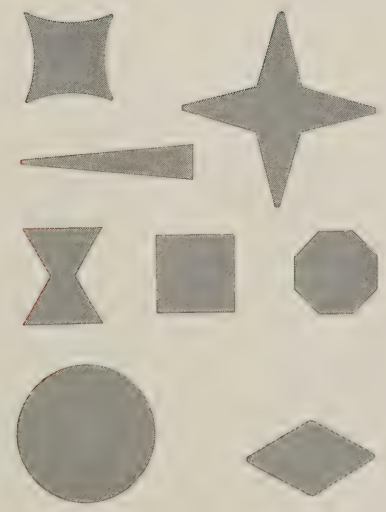


6134



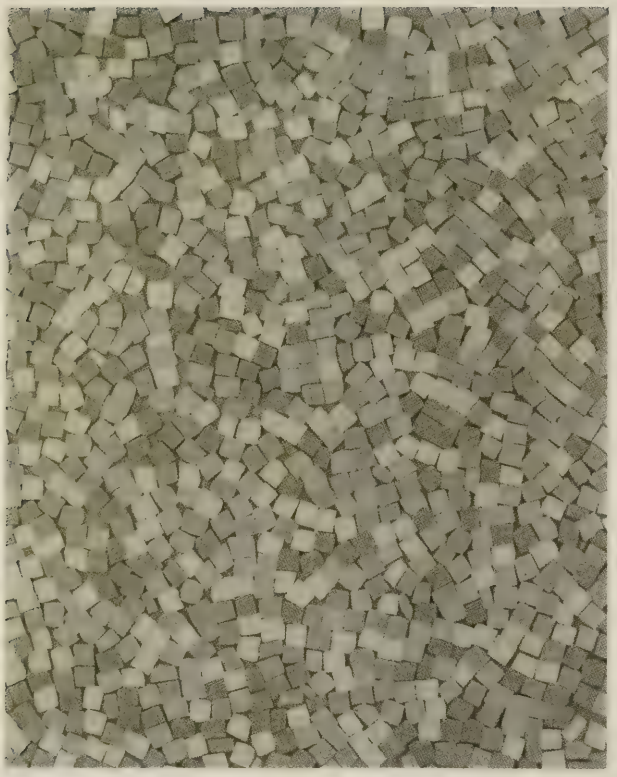
6135





The beauty of the Corlon floor in the room above is accentuated through the use of just two of the Armstrong Decorator Corlon Inlays and Feature Strips shown at the left. The feature strips are available in ½″ and 1″ widths, 45 feet to a roll. Decorator Corlon Inlays are packed 12 to a carton of the same shape and color. They are available in the same colors as the feature strips. Both inlays and strips are made in .070″ gauge with an Armofelt Back for use with sheet vinyl Corlon.

Armstrong DECORATOR CORLON INLAYS AND STRIPS



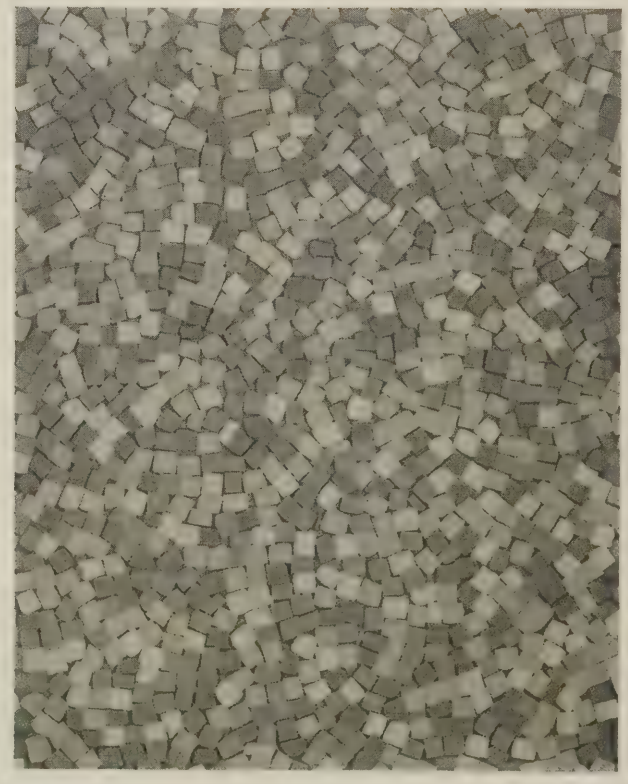
86530
Hydrocord Back



86531
Hydrocord Back

The new Tessera Series in Armstrong Vinyl Corlon is a heavy gauge plastic sheet flooring material for use in residential, commercial, and institutional interiors requiring both an elegant and an exceptionally durable floor. Tessera makes use of colored vinyl chips to exactly simulate the tesserae used in handcrafted mosaics. The chips are set into a bed of translucent vinyl to give a striking three-dimensional effect. This mosaic design is inlaid all the way to the backing and remains both clean and sharply defined throughout the long life of the vinyl.

Despite their appearance of floating, the chips actually form a smooth flooring surface which assures ease and economy of maintenance. Tessera is resistant to grease and alkalis as well as indentation and abrasion. The exclusive Armstrong Hydrocord Back on Tessera resists alkalis and permits installation directly onto concrete subfloors both on grade and below grade as well as suspended floors.



86532
Hydrocord Back

Armstrong TESSERA CORLON

2 yards wide
Approximately 1/2 actual size



86533
Hydrocord Back



86534
Hydrocord Back



86535
Hydrocord Back



86536
Hydrocord Back

Armstrong TESSERA CORLON

2 yards wide
Approximately 1/2 actual size

RESEARCH



STYLING



MANUFACTURIN





RESILIENT TILES

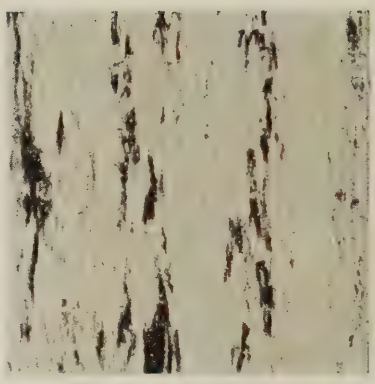
Armstrong Resilient Tiles come in nine generic varieties styled and formulated to fill different requirements in cost, application, and function. Several consist wholly or partly of vinyl and hence, along with Asphalt Tile, have universal subfloor application. All serve specific needs with respect to properties or service and all, of course, offer unlimited custom design possibilities.



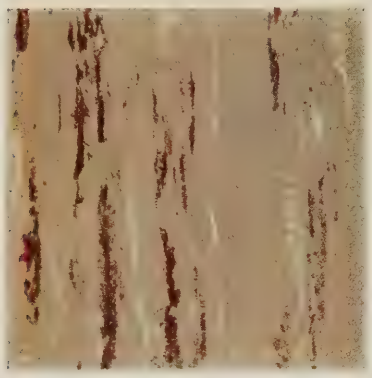
A-200 Pompeian Red†



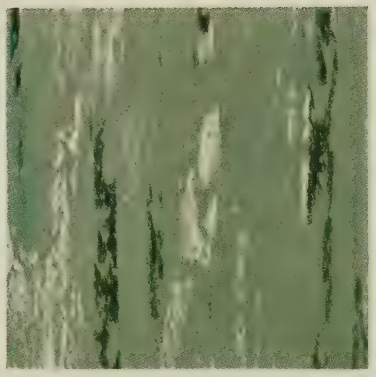
A-210 Black†



D-900 Ivory



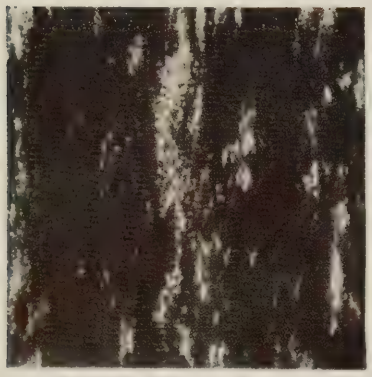
C-901 Pearl Blush



C-902 Foam Green G2-902*



D-904 Straw Yellow



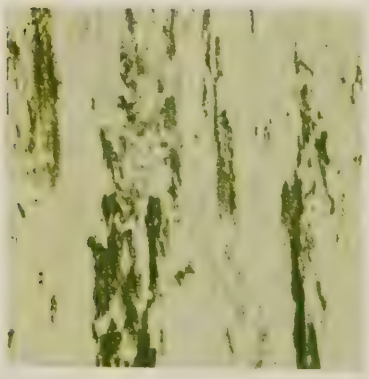
B-905 Ebony



C-907 Jasper Green



C-908 Mocha Brown



D-911 Seaspray Green



B-918 Cedar G2-918*



B-919 Tokay

Armstrong ASPHALT TILE

All patterns in 9" x 9" only except A-200 and A-210 18" x 24" only
1/8" and 3/16" gauges
* greaseproof
† Available in 18" x 24" only



Canyon Beige C-920



Honey Beige C-921



Autumn Brown B-922



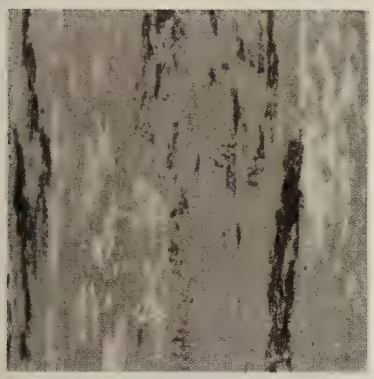
Everglade Black B-923



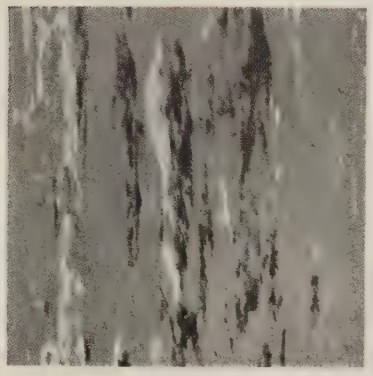
G2-924* Cinnabar C-924



G2-926* Palomino Beige C-926



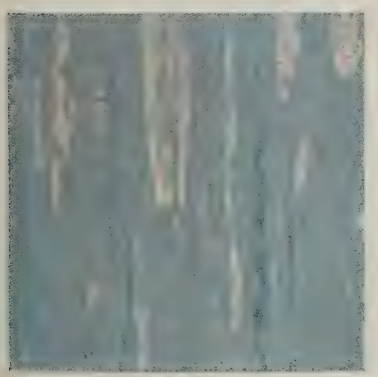
G2-944* Pewter Gray C-944



Pearl Gray C-946



Gray Taupe C-947



Silver Blue D-953



Cameo Gray C-961



Corinthian Red D-964**

Armstrong ASPHALT TILE

1/8" and 3/16" gauges
9" x 9"
* greaseproof
** 1/8" gauge only



D-970 Light Woodtone



C-971 Dark Woodtone



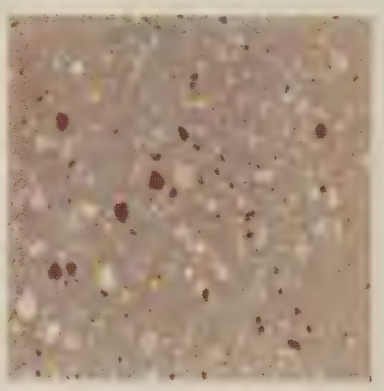
974 Blond Corkstyle



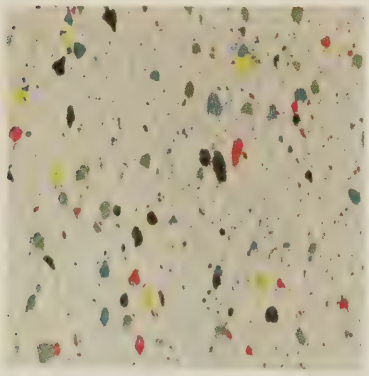
975 Light Corkstyle



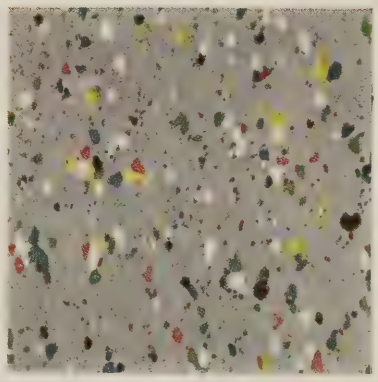
976 Dark Corkstyle



C-989 Tapestry Beige



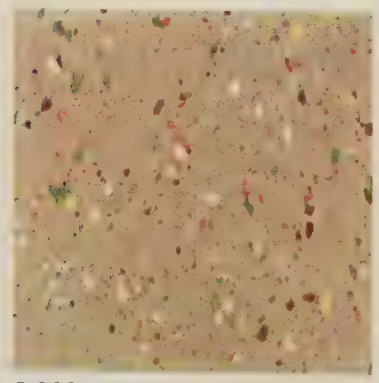
D-990 Gardenia



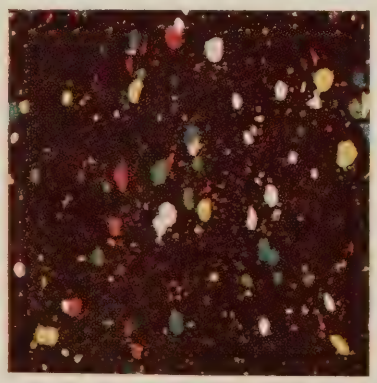
C-991 Gray Dawn



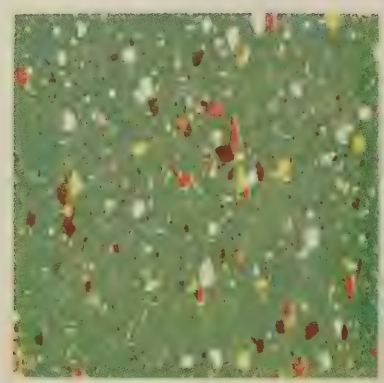
B-992 Onyx Black



C-993 Sandrift



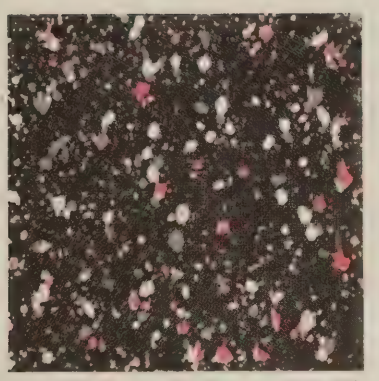
B-994 Cordovan



C-995 Cactus Green

Armstrong ASPHALT TILE

1/8" gauge
9" x 9"



Charcoal C-997*

Pompeian Red A-200

Venetian Red C-204

Black A-210

Regal Blue D-231

Azure Blue D-235

Yellow D-246

Dark Green C-251

Light Green C-257

Light Gray C-265

Steel Gray C-266

White D-270

Garnet D-275

Armstrong Shuffleboard Inset No. 560 is die-cut at the factory and is furnished in units of two of the illustrated ends to a set. It is available in the colors shown in 3′ x 3′9″ size, in 1/8″ and 3/16″ gauges. This standard shuffleboard inset can be incorporated into floor designs using any of the asphalt tile colors available.



Standard Shuffleboard Unit 560

Armstrong Asphalt Tile Inset Colors. All of the colors shown above are available for inset work. The Standard Hand-Cut Insets illustrated on page 121 may be ordered in any combination of the colors shown above. Die-Cut Insets shown on page 120 are available also in these colors at slight additional cost. In addition to their availability as inset colors, Nos. A-210, C-204, D-246, C-257, D-270, and D-275 are also furnished as feature strips, 1″ wide by 24″ long. Asphalt Tile Feature Strips offer unlimited custom-floor design opportunities. See pages 144-147 for several suggestions.

Armstrong ASPHALT TILE

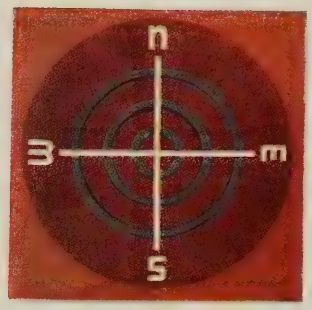
1/8″ and 3/16″ gauge
9″ x 9″
* 1/8″ gauge only



500 Wild Duck



501 Cocktail



502 Compass



506 Sunburst



508 Target



510 Anchor



511 Pointer



514 Champagne



515 Top Hat



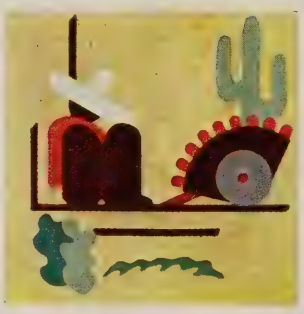
516 Sailboat



517 Sailfish



520 Four Aces



521 Siesta



522 Lyric



523 Sandtrap



524 Palm Tree

Armstrong Asphalt Tile Die-Cut Insets lend the touch of a custom floor to any installation. The air of individuality they provide in both residential and commercial interiors is available at small additional cost. They are made in the colors shown here in 18″ x 18″ size and in 1/8″ and 3/16″ gauges. Asphalt Die-Cut Insets may also be ordered in the special colors shown on page 119.

They are produced also in alphabet characters, numerals, punctuation marks, and traffic directors. These come in any two shades of asphalt tile or of asphalt tile inset colors. All of the backgrounds are 9″ high with the inset widths in proportion to the character widths.

Basketball Court Units with official lines and circles are also available in Armstrong Die-Cut Insets of white, yellow, or black. They are available in sizes for junior high school, high school, and college.

Armstrong ASPHALT TILE DIE-CUT INSETS

1/8″ and 3/16″ gauges
18″ x 18″



Florist Delivery 580

27", 36", and 63" square
2 colors



Cocktail 581

27", 36", and 63" square
4 colors



Dental Caduceus 582

18", 27", 36", and 63" square
5 colors



Script Initials 583

18", 27", and 36" square
2 colors



Medical Caduceus 585

18", 27", 36", and 63" square
3 colors



Men's Shop Design 586

18", 27", 36", and 63" square
5 colors



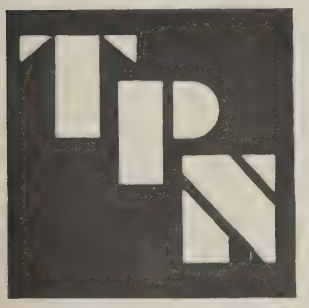
American Legion 587

27", 36", and 63" square
3 colors



Elks Lodge Emblem 588

27", 36", and 63" square
4 official colors



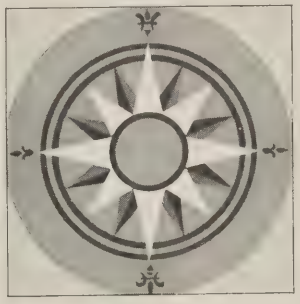
Standard Monograms 589

18", 27", and 36" square
2 colors



Mortar and Pestle 590

18", 27", 36", and 63" square
3 colors



16-Point Compass 591

18", 27", 36", and 63" square
4 colors



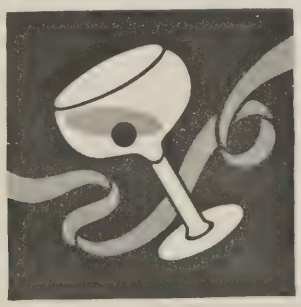
Anchor 593

18", 27", 36", and 63" square
3 colors



Treble Clef 594

18", 27", 36", and 63" square
3 colors



Manhattan 599

18", 27", and 36" square
3 colors

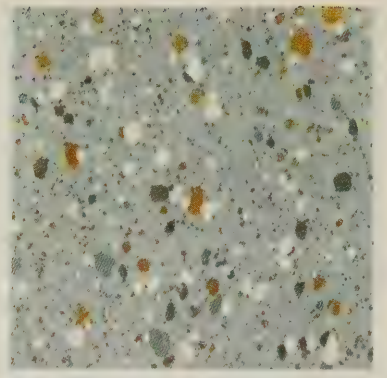
Armstrong Standard Hand-Cut Insets are available in many popular trade-marks, monograms, and insignia. They may be ordered in any of the inset colors shown on page 119 at no additional cost. In addition to the insets shown here, modern, block, or script alphabet characters are also made in Asphalt Tile Standard Hand-Cut Insets. These are available in 9" x 9", 12" x 12", and 18" x 18" in 1/8" and 3/16" gauges. Limit, one character to each block.

Armstrong ASPHALT TILE STANDARD HAND-CUT INSETS

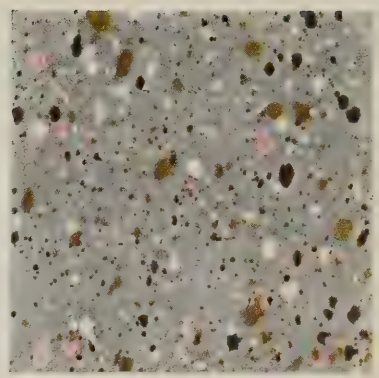
1/8" and 3/16" gauges



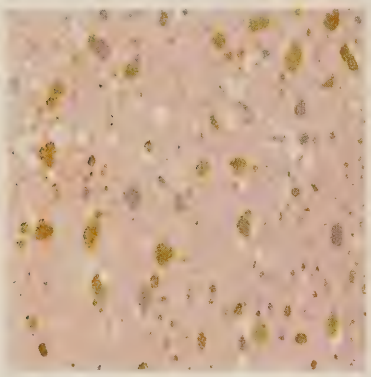
300 Beige Gold—*metallic series*



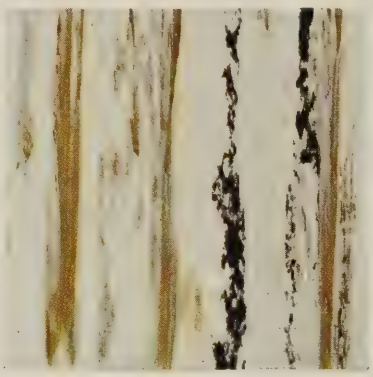
301 Mint Gold—*metallic series*



302 Slate Gold—*metallic series*



303 Pink Gold—*metallic series*



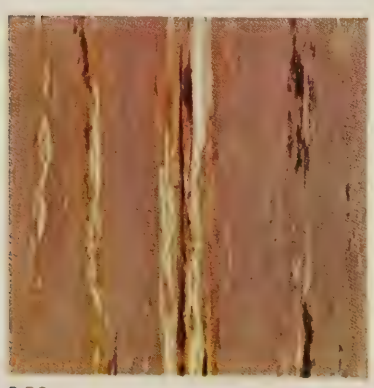
350 White Gold—*metallic series*



351 Black Gold—*metallic series*



352 Ivory Gold—*metallic series*



353 Redwood Gold—*metallic series*

The shimmering golden accents of the Metallic Series in Armstrong Excelon Tile make possible new and more abundant decorating opportunities in this popular vinyl-asbestos flooring material. The Metallic Series is composed of eight colors, four in the Spatter design and four in a straight grain effect. The metallic highlights are dispersed through the patterns and retain their luster for the life of the material.

This sparkling flooring material presents many opportunities for new and different decorating themes. Its metallic design effect forms a perfect background for any of the large variety of metallic fabrics available for today's drapery and upholstery use. In addition, the soft harmonious and contrasting Excelon colors lend an air of smartness and distinction to all types of residential interiors.

Armstrong Excelon Tile is a low-cost flooring material which has excellent resistance to grease and oil. It is not only an attractive tile but is tough, flexible enough for easy do-it-yourself installation, and fully alkali resistant. Excelon may be installed on grade, above grade, or below grade and comes in the popular 9″ x 9″ tile size.

Armstrong EXCELON TILE

service gauge
9″ x 9″



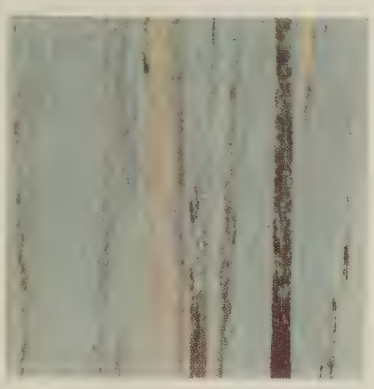
Cheyenne Taupe 700



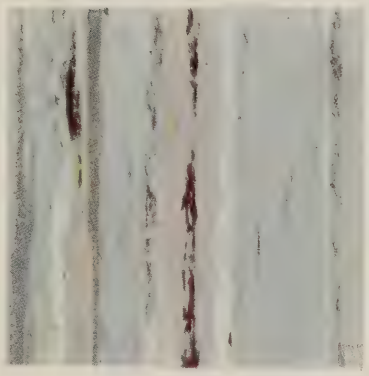
Mandan Gray 701



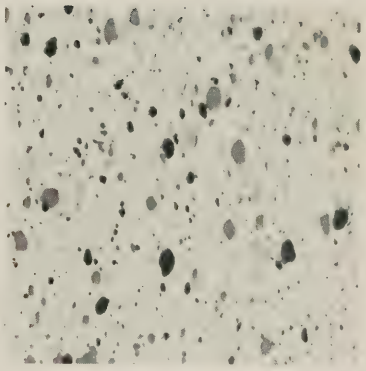
Chippewa Gray 703



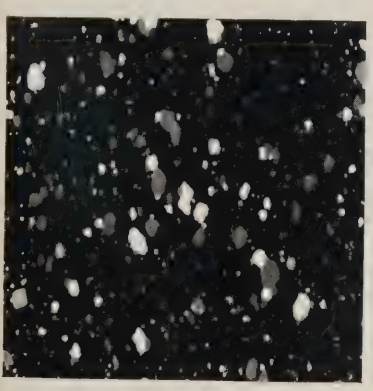
Algonquin Green 704



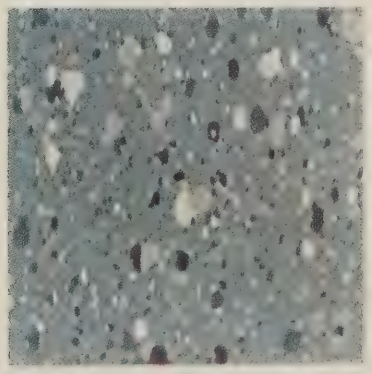
Acoma Blue 705



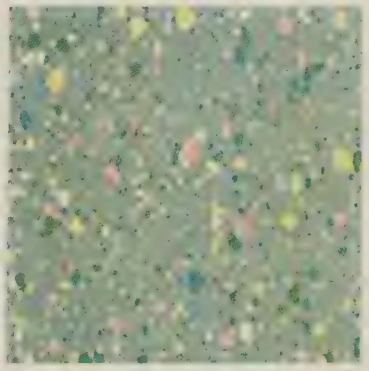
spatter series—Chelsea White 731



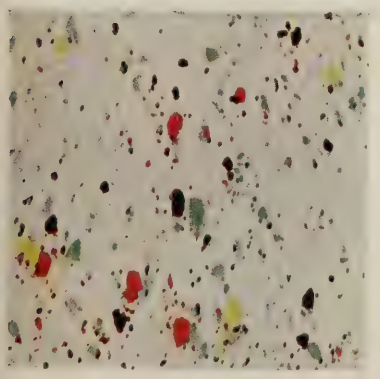
spatter series—Dorset Black 732



spatter series—Cornwall Blue 733



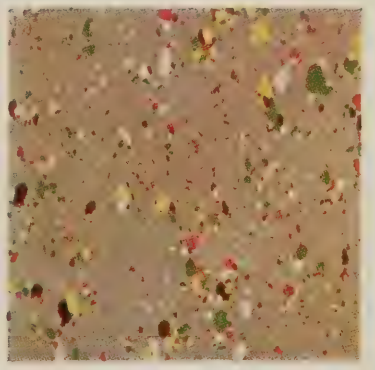
spatter series—Waterbury Green 734



spatter series—Andover White 735



spatter series—Bedford Gray 736



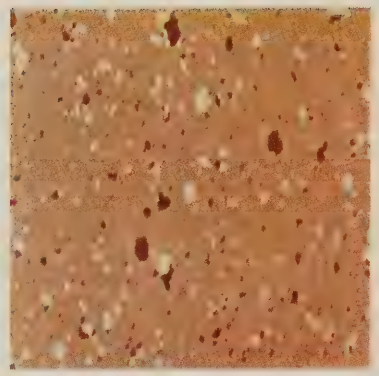
spatter series—Cape Cod Beige 737

Armstrong EXCELON TILE

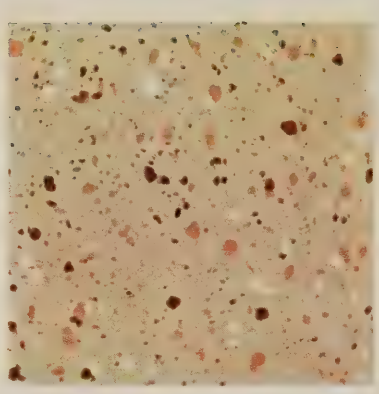
service gauge
9" x 9"



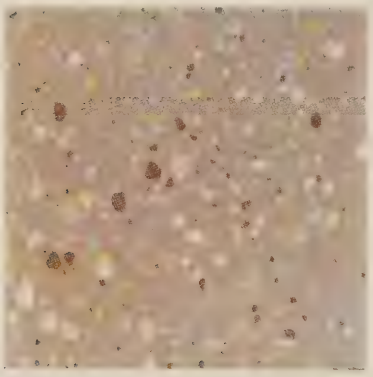
739 Providence Charcoal—*spatter series*



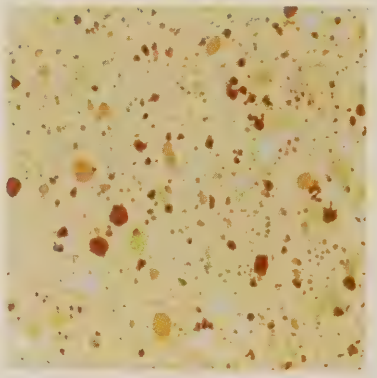
740 Arlington Cedar—*spatter series*



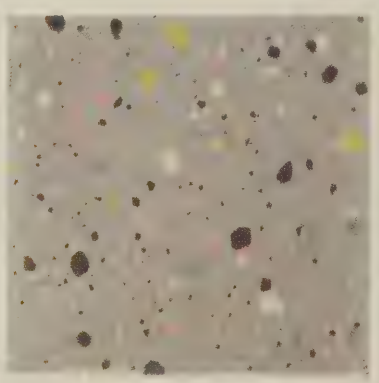
746 Rutland Beige—*spatter series*



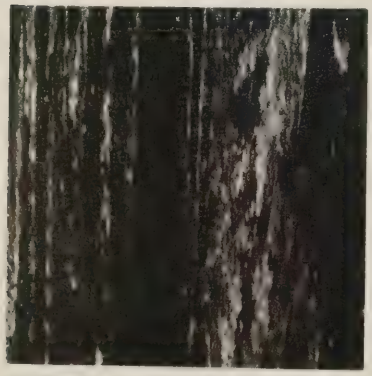
747 Meriden Taupe—*spatter series*



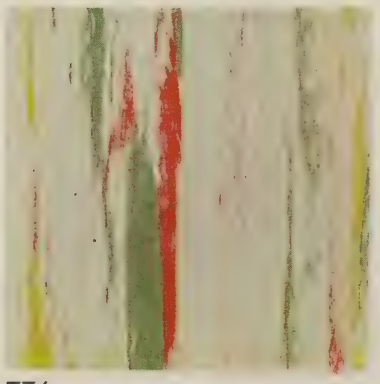
748 Lynn Ivory—*spatter series*



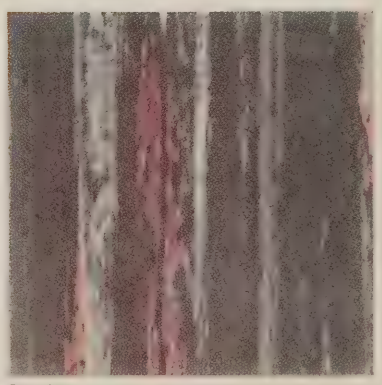
749 Worcester Gray—*spatter series*



772 Comanche Black*



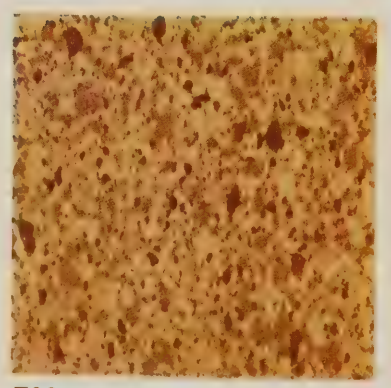
776 Cherokee White



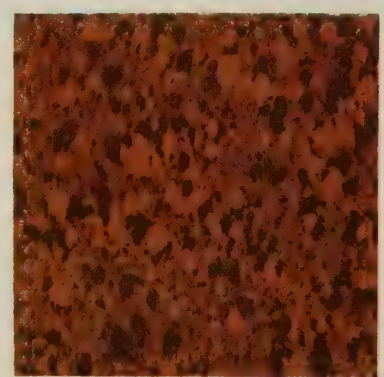
786 Mohave Charcoal



797 Medium Corkstyle



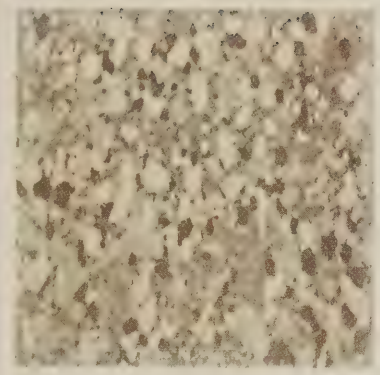
798 Light Corkstyle



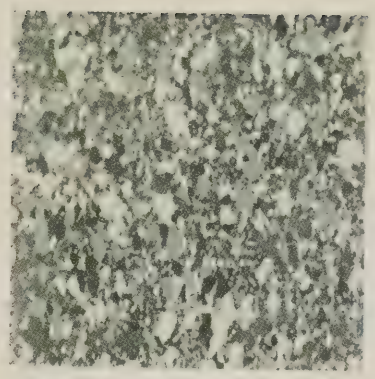
799 Dark Corkstyle

Armstrong EXCELON TILE

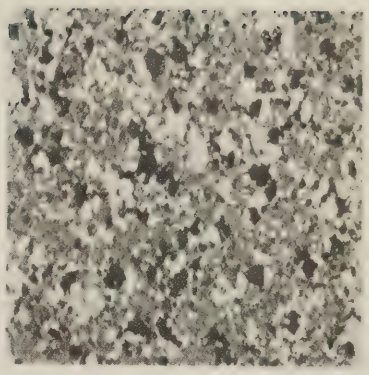
service gauge
9" x 9"
* also in 1/8" gauge



styletone series—Sandtone 830



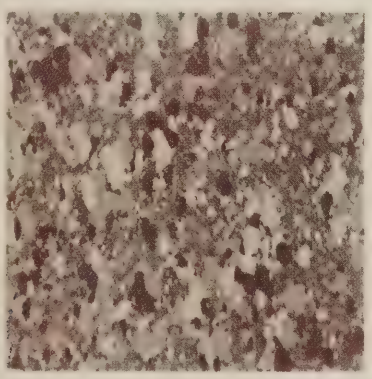
styletone series—Mintone 831



styletone series—Silvertone 832



styletone series—Ivorytone 833



styletone series—Rosetone 834



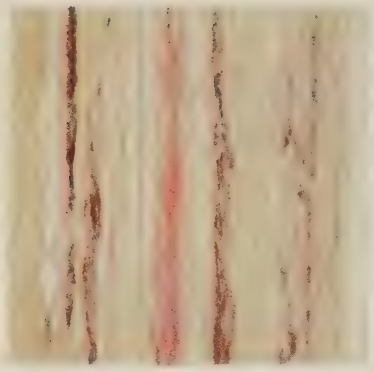
styletone series—Cedartone 835



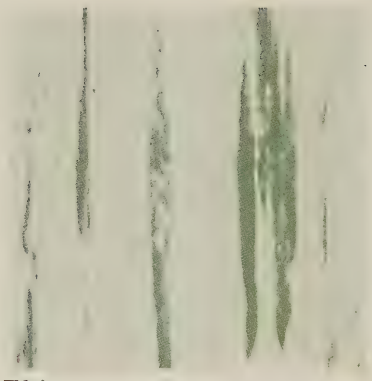
Just one of the many attractive custom floor designs possible with Armstrong Excelon Tile. The floor is Corkstyle Excelon Style No. 799 in 9" x 9" tile with feature strips of plain black, Style No. 790 outlining the tile blocks in ashlar fashion. The use of factory die-cut Excelon Tile insets is another method of individualizing floors at minimum cost.

Armstrong EXCELON TILE

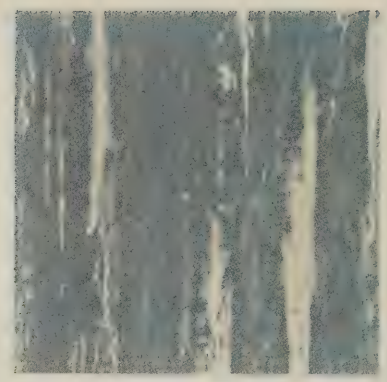
9" x 9"
service gauge only



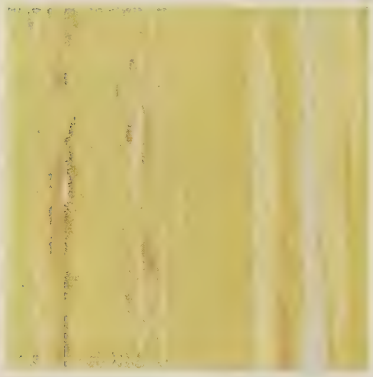
702 Waco Sand



706 Kiowa White



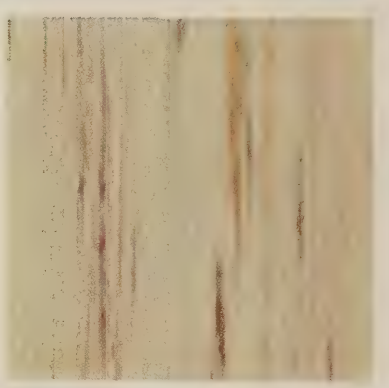
711 Isleta Blue



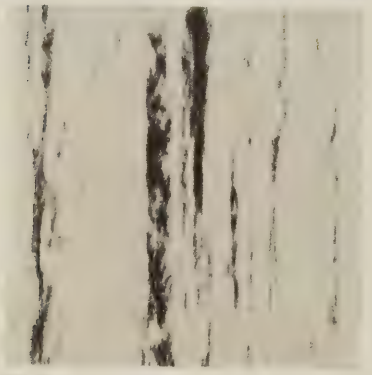
712 Catawba Yellow



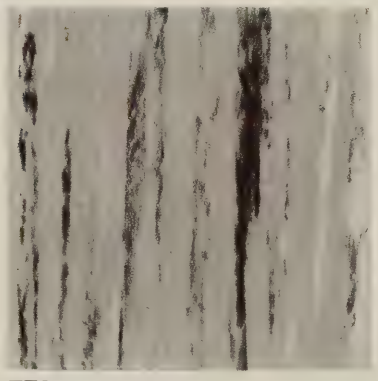
762 Sand Beige—*designers series*



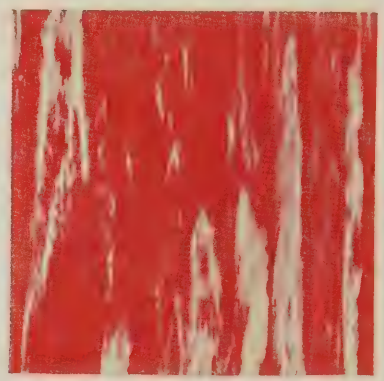
767 Ecru—*designers series*



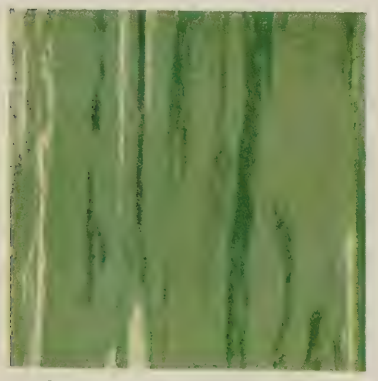
770 Seneca White



771 Mohawk Gray



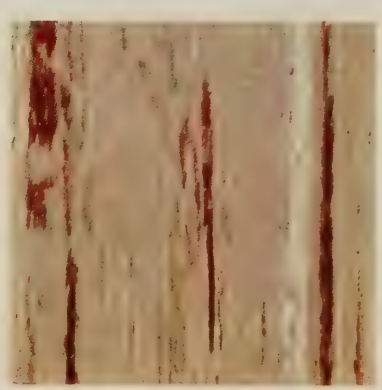
777 Apache Red



780 Osage Green



782 Sioux Pink



783 Iroquois Tan

Armstrong EXCELON TILE

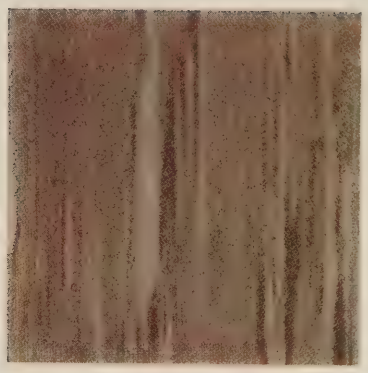
9" x 9"
1/8" and service gauge



designers series—Mint Green 760



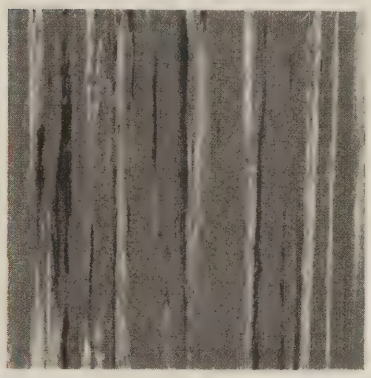
designers series—Silver Gray 761



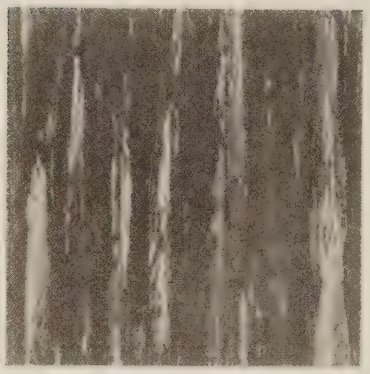
designers series—Rose Taupe 763



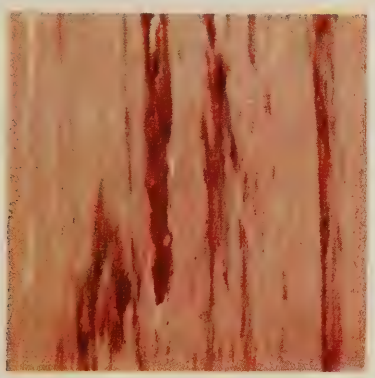
designers series—Sienna Copper 765



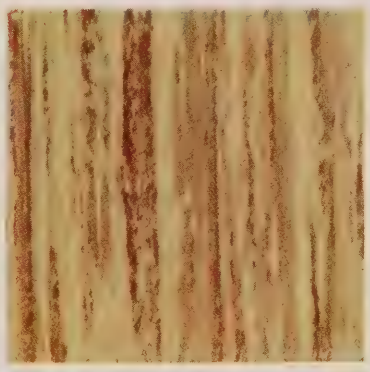
designers series—Mineral Gray 768



designers series—Kasha Taupe 769



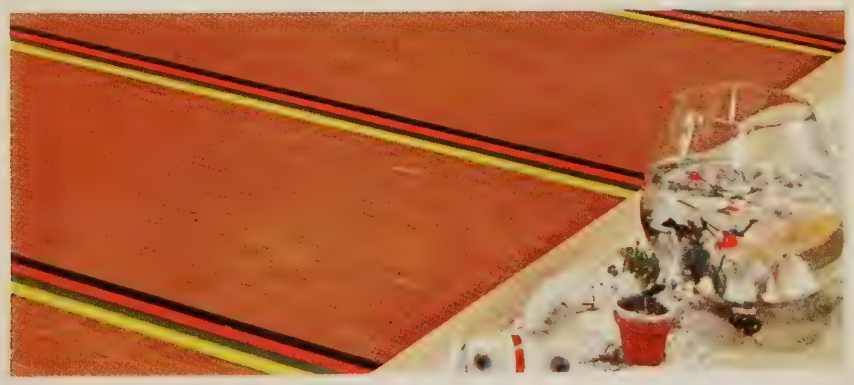
Mohican Cedar 779



Light Woodtone 788†



Dark Woodtone 789†



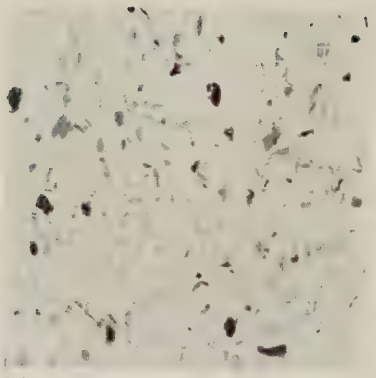
Feature strips are often used to create simple custom effects. Here the floor of Armstrong Excelon Tile, Style 765, is accented with Excelon feature strips in black, red, green, and yellow which highlight the subdued tones of the Sienna Copper floor.

Armstrong EXCELON TILE

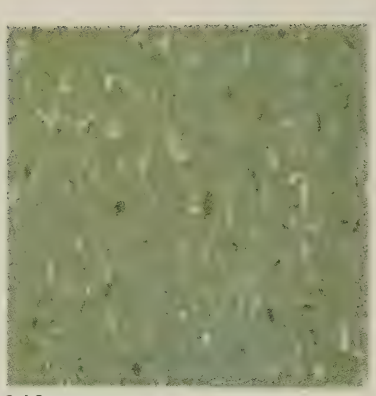
1/8" gauge only
9" x 9"
†1/8" and service gauge



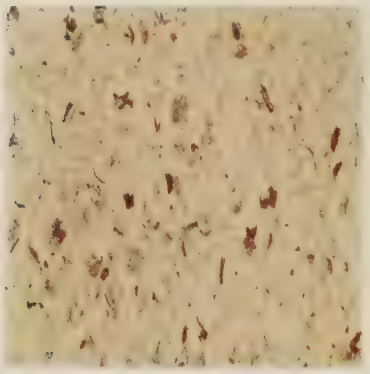
860 Priscilla Gray—*imperial series*



861 Ancestral White—*imperial series*



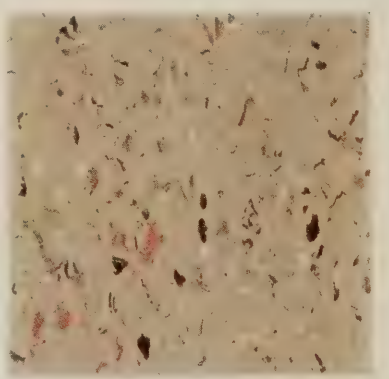
862 Arbor Green—*imperial series*



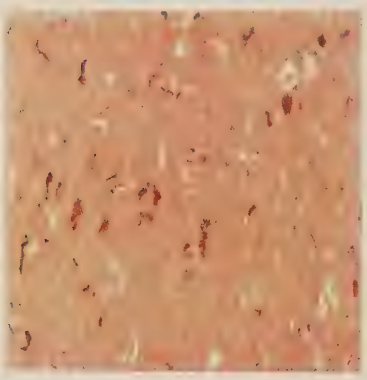
863 Maplewood Tan—*imperial series*



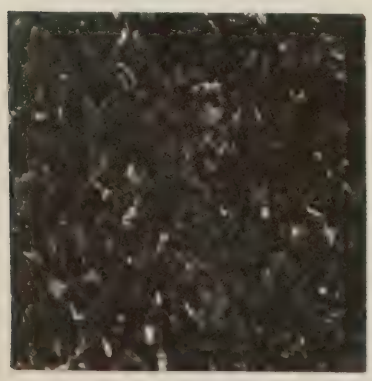
864 Pilgrim Taupe—*imperial series*



865 Coppertone Beige—*imperial series*



866 Cuban Cedar—*imperial series*



867 Corsair Black—*imperial series*

This panel shows one of the many custom designs possible through the use of Armstrong Excelon Tile. The striking combination of beige, copper, and black tile makes this unique floor design one that will add decorative beauty to any room. The block by block installation of Excelon Tile allows the professional craftsman or home mechanic to install Excelon Tile in such a way as to make rooms appear wider or longer. The color proportions are: Beige 58.4%, Copper 20.8%, and Black 20.8%.

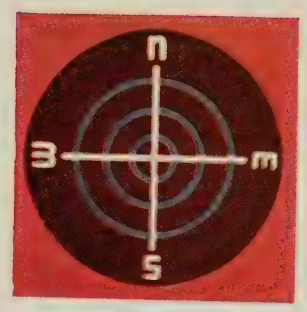


Armstrong EXCELON TILE

1/8" gauge
9" x 9"



Cocktail 0501



Compass 0502



Sunburst 0506



Sailboat 0516



Siesta 0521



Palm Tree 0524



Plain Black 790

Plain White 791



Plain Red 792



Plain Yellow 793



Plain Green 794



Plain Brown 795

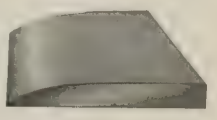


Shuffleboard 0560

Excelon Feature Strips give an expensive custom look to floors of Excelon Tile, yet are low in cost. They are made in 24″ lengths and are 1″ wide. 1/8″ and Service Gauges are available.

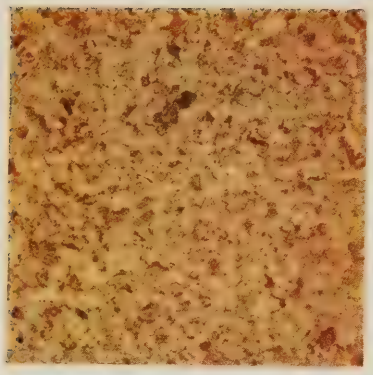
Armstrong Excelon Tile Die-Cut Insets lend an air of individuality for a small additional cost. All insets shown here with the exception of the Shuffleboard unit are available in 18″ x 18″ size. The Shuffleboard is made in 3′ x 3′9″ size and is packed 2 ends per set.

Excelon Beveled Edging S-19 is used in finishing edges of Excelon floors at doorways and on aisles. Plain Black, Service Gauge only. 1″ wide.



Armstrong EXCELON TILE INSETS

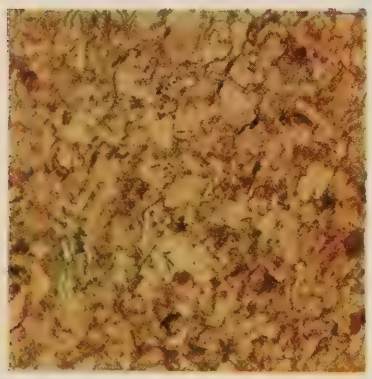
INSETS—service gauge only
FEATURE STRIPS—1/8″ and service gauge



*410 Mocha Tan



411 Coconut Brown



1005 Natural Design
Custom Vinyl Cork Tile



1006 Random Driftwood Design
Custom Vinyl Cork Tile



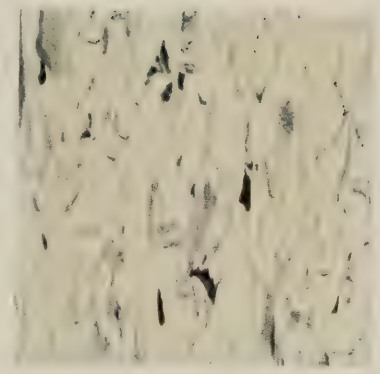
Armstrong 3/32″ Cork Tile is moderately priced. It is extremely flexible and ideal for self-installation in residences and small offices. The heavier 1/8″, 3/16″, and 5/16″ gauges are designed specifically for commercial areas and fine residential interiors. It is available in a variety of tile sizes.

Custom Vinyl Cork Tile offers the ultimate in luxury. This flooring features extra large particles of virgin cork fused with vinyl binders which give it exceptional beauty and high resistance to wear. The large cork particles give it an unusually attractive textured appearance which makes it a perfect background for the richest of modern furnishings.

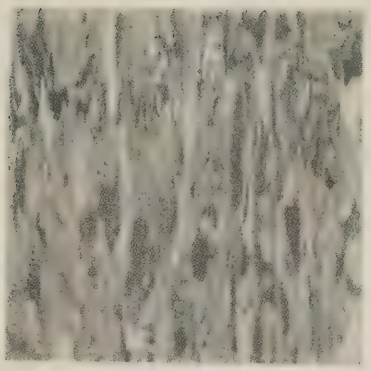
Armstrong CORK TILE

Cork Tile—3/32″,* 1/8″, 3/16″, and 5/16″ gauges
9″ x 9″, 12″ x 24″, 6″ x 12″, 12″ x 12″, beveled and square edged
*3/32″ gauge in 9″ x 9″, square edged only

Custom Vinyl Cork Tile—1/8″ gauge
Pattern 1005—9″ x 9″, beveled and square edged
Pattern 1006—9″ x 9″, square edged only



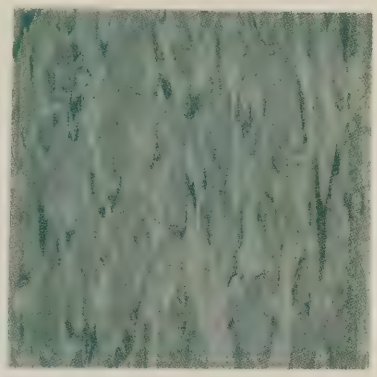
Carrara White 460



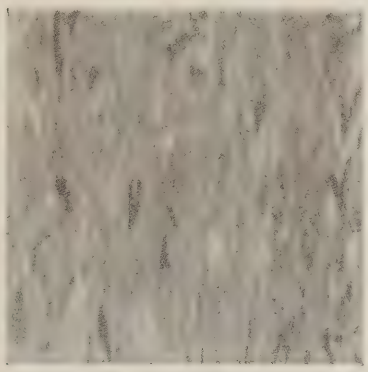
Trieste Gray 461



Imperial Black 462



Aspen Green 469



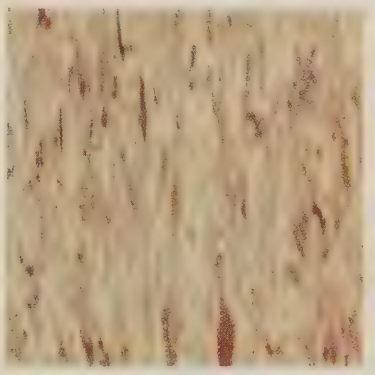
Mist Gray 472



Sahara Beige 474



Empire Yellow 475



Ecru Beige 476



Bordeaux Red 477



Mother of Pearl 480



Champagne Beige 481



Rosewood 482

Armstrong CUSTOM CORLON TILE

3/32" and 1/8" gauge
9" x 9", 12" x 12", 18" x 36"



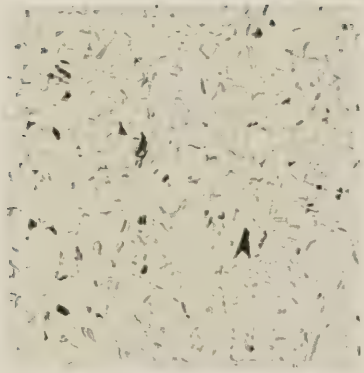
483 Beige Green



484 Sandrift Taupe



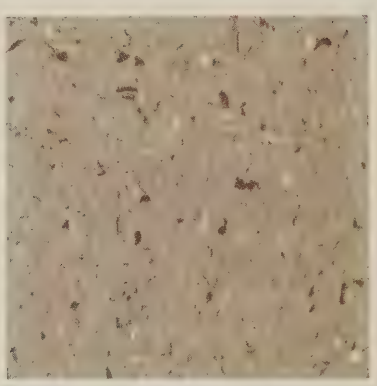
485 Beige Pink



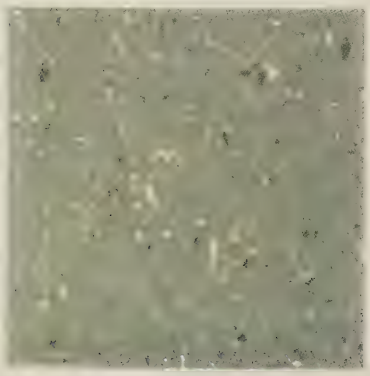
1400 Polar White—*imperial series*



1401 Onyx Black—*imperial series*



1403 Shell Beige—*imperial series*



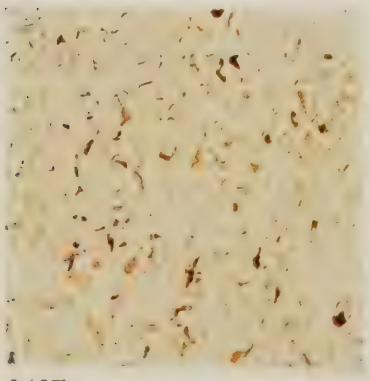
1404 Verdure Green—*imperial series*



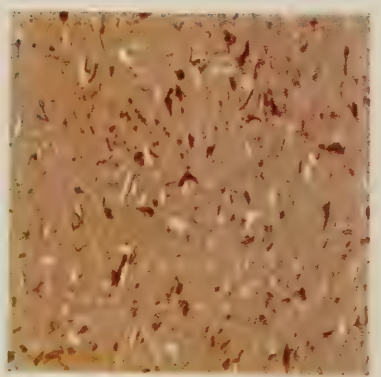
1405 Crystal Gray—*imperial series*



1406 Rustic Copper—*imperial series*



1407 Antique Ivory—*imperial series*



1408 Tawny Sand—*imperial series*



1409 Turquoise Beige—*imperial series*

Armstrong CUSTOM CORLON TILE

3/32″ and 1/8″ gauge
9″ x 9″, 12″ x 12″, 18″ x 36″



imperial series—Honey Beige 1413



imperial series—Primrose Yellow 1415



imperial series—Mink Taupe 1416



imperial series—Sea Shell Pink 1417



imperial series—Rose Beige 1418

Plain White 1460



Plain Black 1461



Strips of plain black in Custom Corlon are used to lend a look of custom elegance to this installation. The floor is Custom Corlon Tile, Style 460.

Armstrong CUSTOM CORLON TILE

3/32" and 1/8" gauge
9" x 9", 12" x 12", 18" x 36"



150 Fog Gray



151 Iceberg Green



152 Pink Beige



153 Ivory Dawn



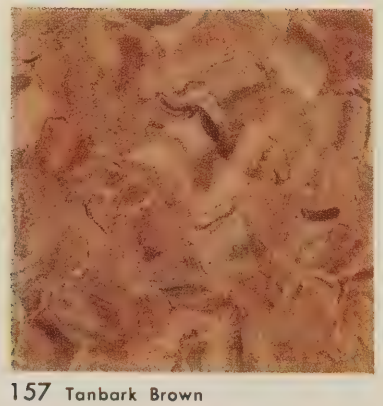
154 Mist Gray



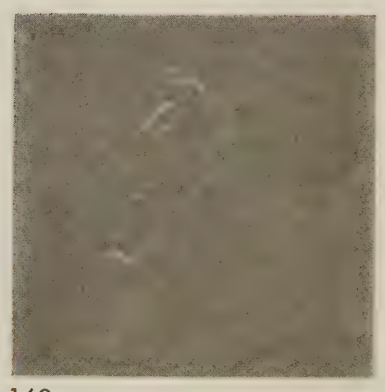
155 Warm Taupe



156 Sunset Yellow



157 Tanbark Brown



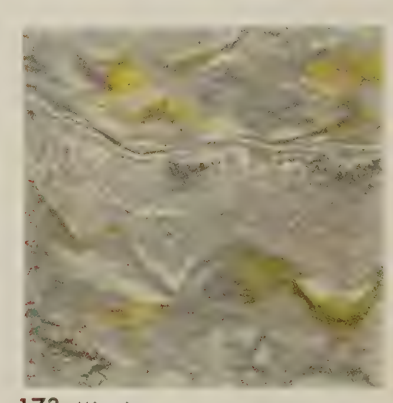
169 Graphite Gray



171 Rainbow



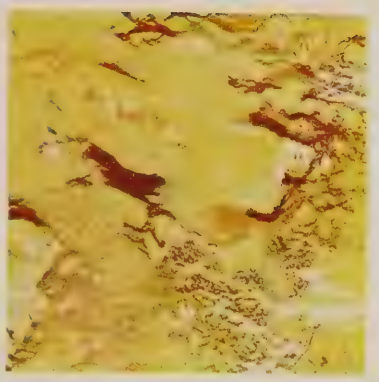
172 Sultan Red



173 Mistglow

Armstrong LINOTILE

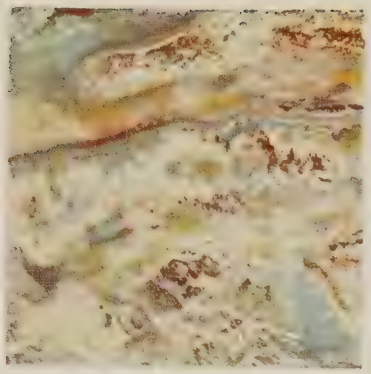
1/8" gauge
9" x 9", 12" x 12", 18" x 36"



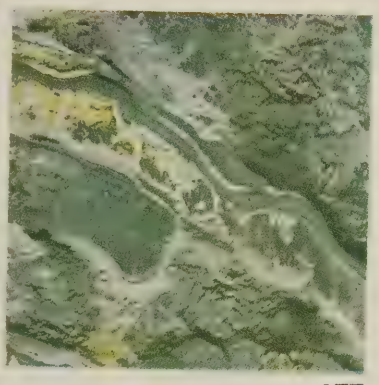
Sunglow 174



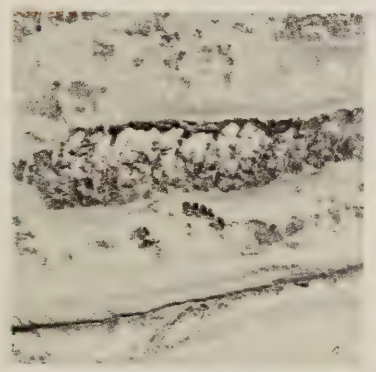
Cocoa Verde 175



Beige Antique 176



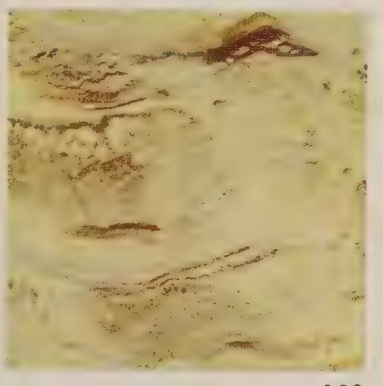
Landscape Green 177



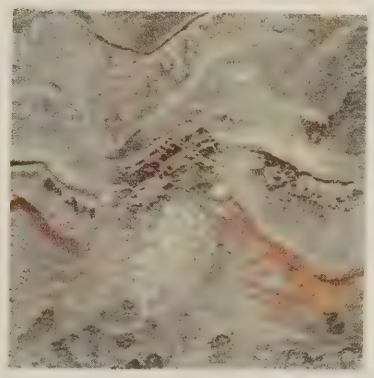
Alabaster 178



Jet Black 180



Travertine 183



Rose Gray 185



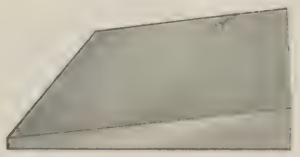
designers series—Manila Tan 187



designers series—Tawny Copper 190



designers series—Old Ivory 191



S-17 Linotile Beveled Edging, used in finishing the exposed edges of all types of suspended resilient floors at doorways and aisles, comes in 1/8″ gauge, 1″ wide and 36″ long, in all Linotile colors. Tapers to 1/32″ on the edge.

Armstrong LINOTILE

1/8″ gauge
9″ x 9″, 12″ x 12″, 18″ x 36″



609 Ecrulette



610 Beige Taupe



611 Coralette



613 Black White



615 Ash Taupe



632 Puritan Gray—*designers series*



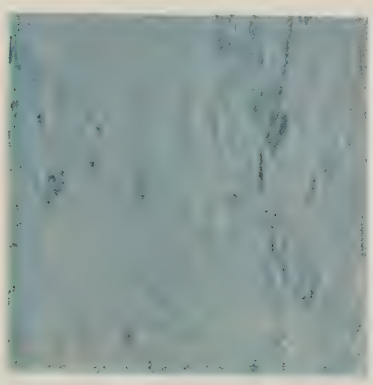
633 Mauve Blush Tan—*designers series*



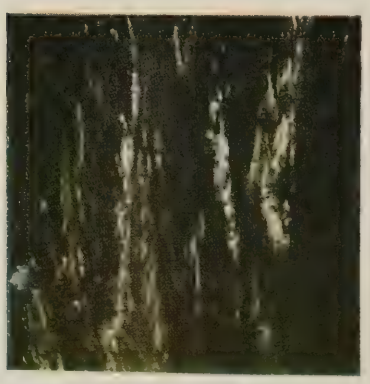
635 Ember Copper—*designers series*



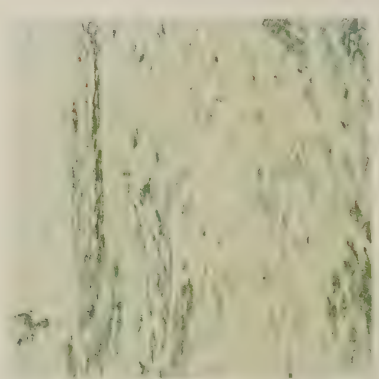
636 Mimosa Yellow—*designers series*



637 Gray Blue—*designers series*



649 Cypress Green



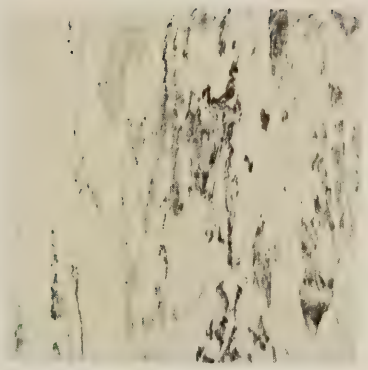
651 White Jade Green

Armstrong RUBBER TILE

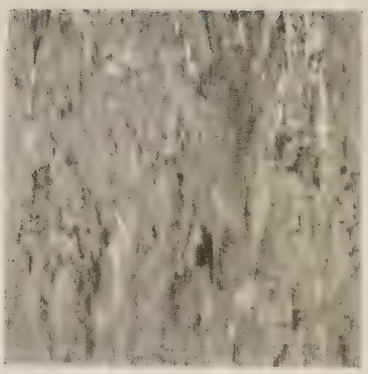
1/8" and 3/16" gauge
9" x 9", 12" x 12", 18" x 36"



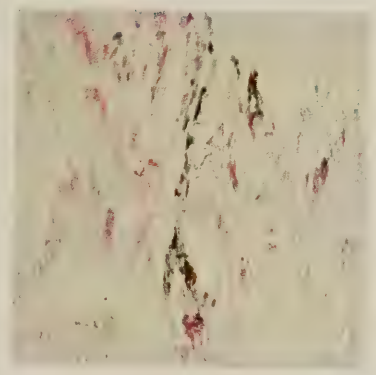
Jade Green White 652



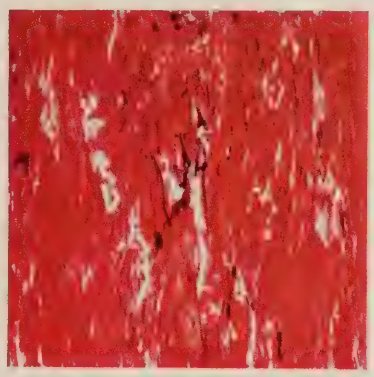
White Black 653



Silver Gray 656



White Ruby Red 664



Ruby Red White 665



Plain Black 695



Black CB-691



Gray CB-692



Chocolate CB-693



Beige CB-694



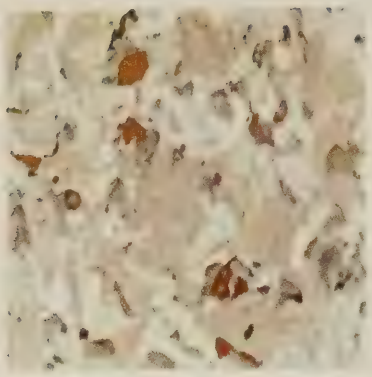




Armstrong Top-Set Rubber Cove Base is a handsome and neat-appearing base trim for use with all Armstrong resilient flooring installations. It eliminates dirt-catching joints and corners and thus simplifies cleaning. Top-Set Rubber Cove Base can be installed with S-275 or S-1200 cement. Its extreme flexibility enables installation without the need of heating, even around the sharpest curves. Straight pieces are 36″ long, with 120 linear feet to a carton. Internal and external corners, 4″ and 6″ high, are supplied 12 to a carton.

Armstrong RUBBER TILE

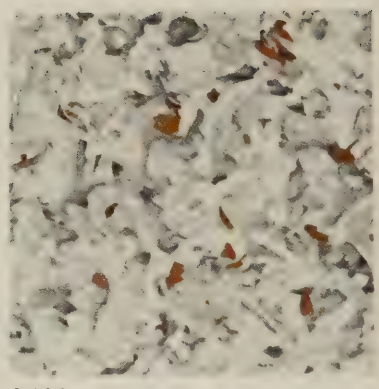
1/8″ and 3/16″ gauges
9″ x 9″, 12″ x 12″, 18″ x 36″



1480 Shell Beige



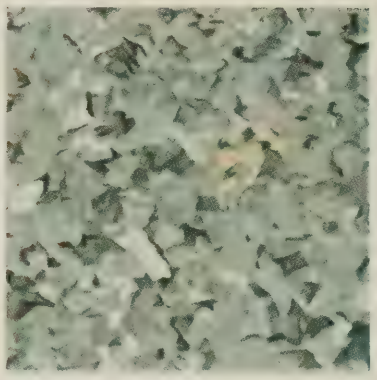
1481 Ebony Black



1482 Crystal White



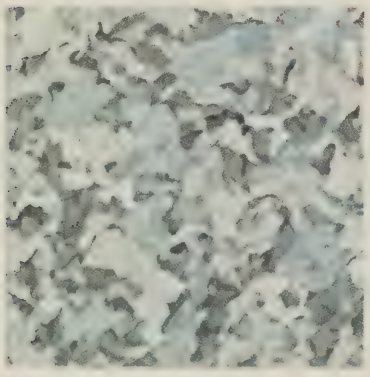
1483 Dogwood Pink



1484 Mint Lime



1485 Pink Frost White



1486 Sapphire Blue

Opalesq Vinyl Tile is a prestige floor designed to meet the decorative needs of interiors where the newest in modern floor styling and color effects is of major importance. It can be specified for all types of commercial, residential, and institutional interiors on suspended, on-grade, and below-grade subfloors.

The unusual beauty of Opalesq Vinyl Tile is brought about through a unique manufacturing process. Thousands of multicolored and transparent chips of vinyl are fused together to give a soft jewel tone appearance. This fine china translucent quality also gives added depth and richness to Opalesq Vinyl Tile.

Opalesq Vinyl Tile is offered in seven soft color effects which lend themselves to high-style interior decoration. Because of its smart and dignified appearance, the new styling in vinyl flooring is equally well suited to church and office buildings as well as fine homes. Its resistance to traffic abrasion, dirt, grease and oils, and many chemicals makes it suitable for almost unlimited commercial installations. It is very easily maintained and requires very little care.

Armstrong OPALESQ VINYL TILE

1/8" gauge
9" x 9", 12" x 12", 18" x 18", 18" x 36", 36" x 36"
Approximately 1/2 actual size



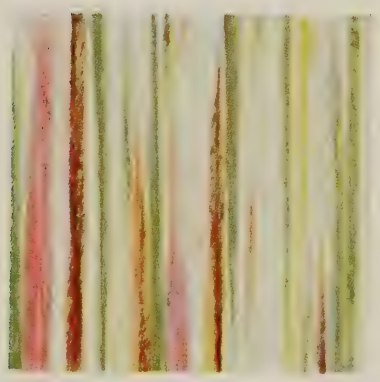
1800



1801



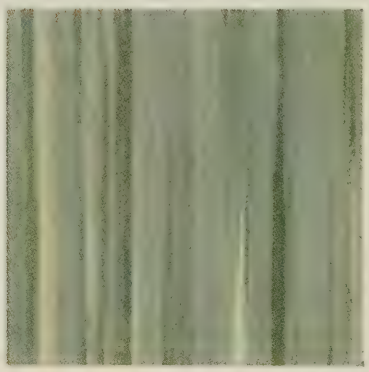
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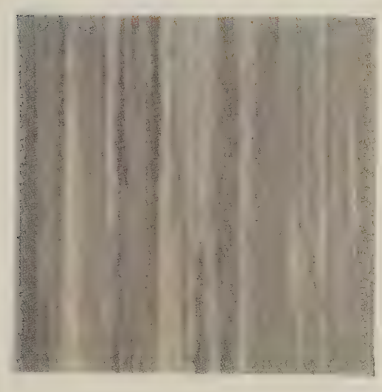
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1804



1806



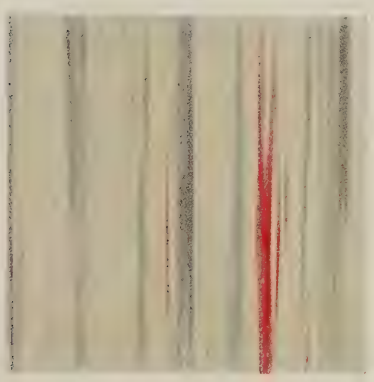
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1810



1813

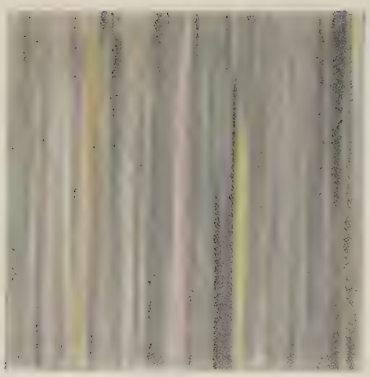


1814

Decoray Linoleum Tile is an attractive flooring material which can be installed either by the home mechanic or by the professional. It provides the easy-to-care-for advantages of linoleum together with the added designing versatility found in tile. The extreme flexibility of linoleum tile makes installation easy. Decoray tiles can be cut with household shears. The low cost of the material makes Armstrong Decoray Linoleum Tile especially appealing where price is of prime consideration.

Armstrong DECORAY LINOLEUM TILE

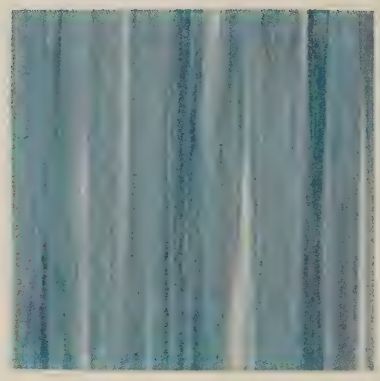
service gauge
9″ x 9″



1815



1816



1817



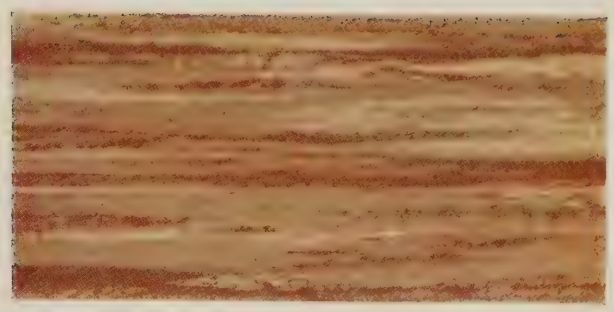
Armstrong Linoleum Tile is offered in square and oblong tile shapes in a variety of colorings. These can be combined to create all sorts of distinctive and decorative effects. The floor illustrated here is one example of the many combinations possible with this material.

Armstrong DECORAY LINOLEUM TILE

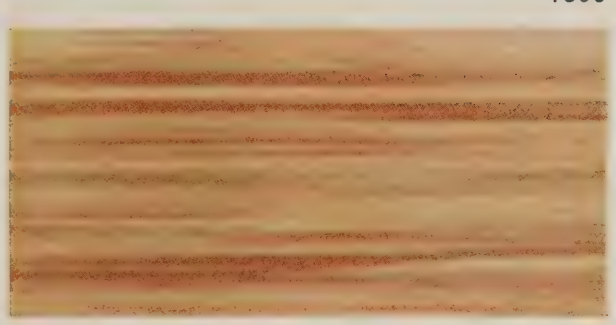
service gauge
9" x 9"



1800



1801



1840



1841



1842



1843



The rich natural wood tones of Armstrong Parquet Linoleum Tile make it adaptable to a variety of custom flooring treatments. Interesting parquetry effects can be created through the use of these 6″ x 12″ tiles. The panel at the left shows an interesting blending of three shades in a single flooring area, just one of the many decorative treatments that can be obtained with Parquet Linoleum Tile.

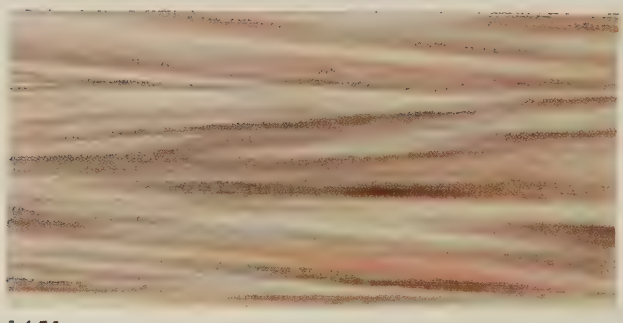
Armstrong Parquet Linoleum Tile is the perfect flooring material for use in areas where the rich natural tones of wood parquetry are desired together with the resilience and easy maintenance of a linoleum floor.

Armstrong PARQUET LINOLEUM TILE

service gauge
6″ x 12″



1650



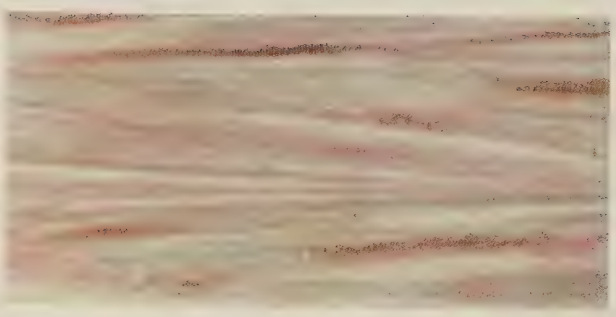
1651



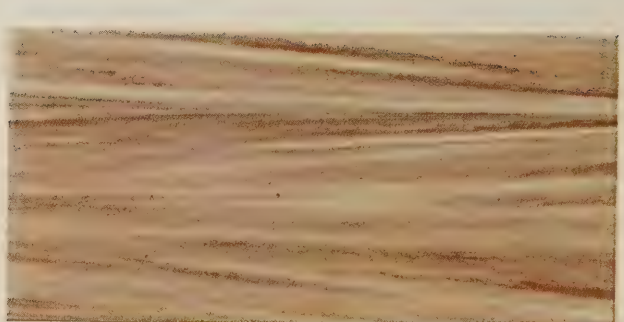
1652



1653



1654



1655



1656



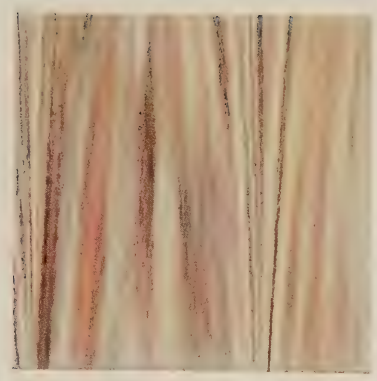
1657

Armstrong DECORELLE LINOLEUM TILE

service gauge
6″ x 12″, 9″ x 9″ tiles



1650



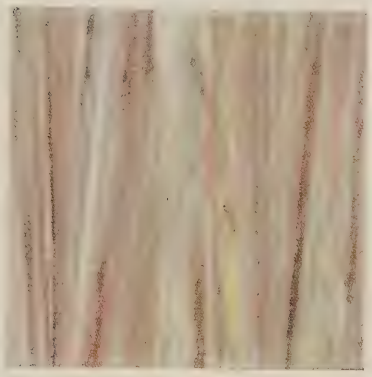
1651



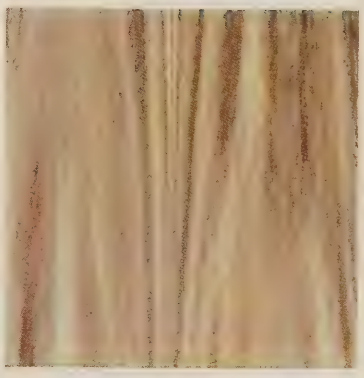
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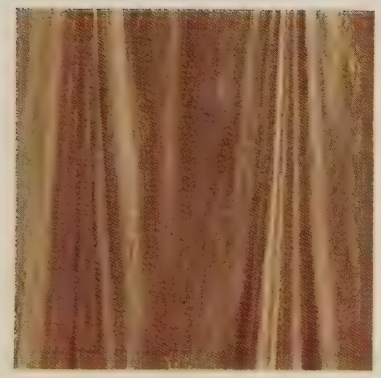
1653



1654



1655



1656



1657

Armstrong Decorelle Linoleum Tile is a sweeping, rippled design which was created to meet the need for a popularly priced, decoratively different flooring material. Decorelle in tile form offers many opportunities for unique custom design, especially through alternating the graining of the tile. Streaks of contrasting hues are blended with the basic pattern colors in Decorelle to form an interesting veining effect.

This pleasing chevron-type graining and harmoniously blended color tones meet a wide variety of modern decorative requirements. Decorelle Tile can be used equally well in almost any room of the home where floors are suspended. Its delicate design makes a perfect setting for area rugs as well as a distinctive background for today's home furnishings.

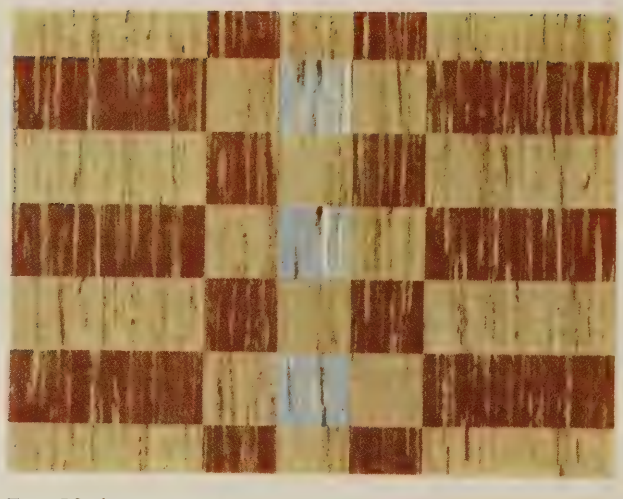
Decorelle Linoleum Tile is backed with Armofelt to permit greater ease of installation especially in cold weather. The use of Armofelt contributes to the clarity and richness of color in Decorelle. This low-priced flooring material can be installed by the home mechanic and is a practical answer to home remodeling needs.

Armstrong DECORELLE LINOLEUM TILE

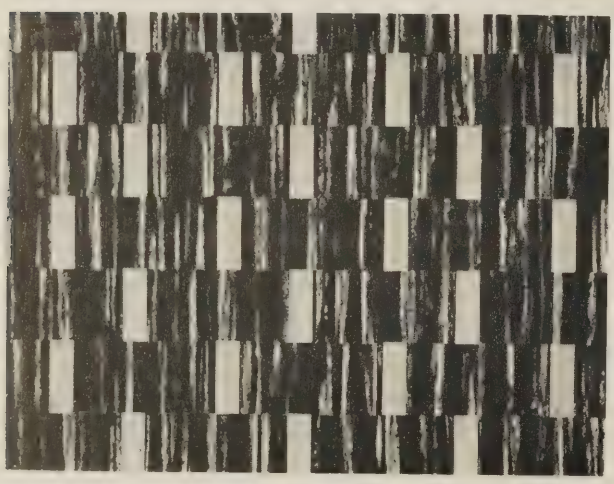
service gauge
standard gauge
9" x 9"



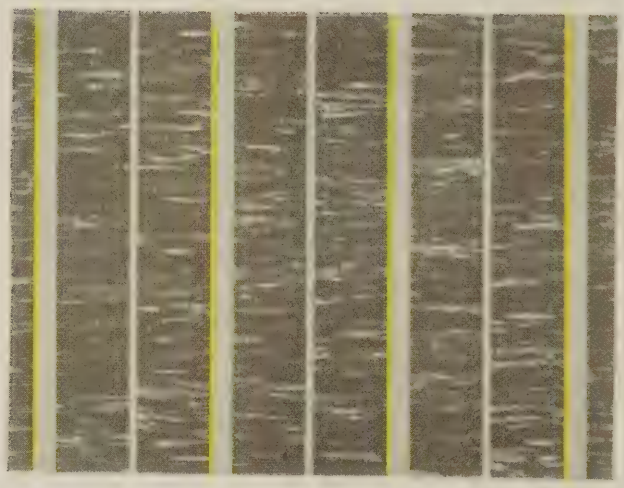
Field 90%, Feature Strip 10%



Tan 50%, Brown 41.7%, Gray 8.3%



Field 82%, Feature Strip 18%



Field 85%, Feature Strip 15%

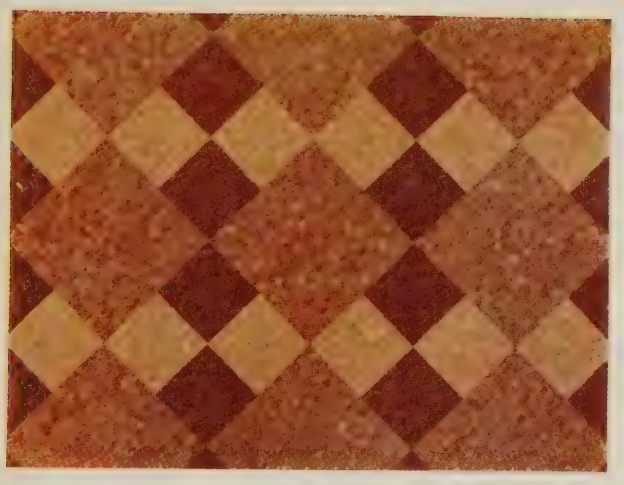
Armstrong Resilient Tiles present many opportunities to create handsome floor designs. Since a tile floor is installed block by block, it is possible to design any number of striking floors by combining various colors. In addition, tiles can be used to architectural advantage. For example, different colored rows of tile running the width of a narrow room can make that room appear wider. Different colorings of tile running the length of a room serve a practical use as direction markers in commercial areas.

Shown here are just a few of the many custom floor designs which can be worked out with any type or color of Armstrong Resilient Tile. Percentages of various colors used in each design are also indicated.



Rose 40%, Tan 30%, Taupe 30%

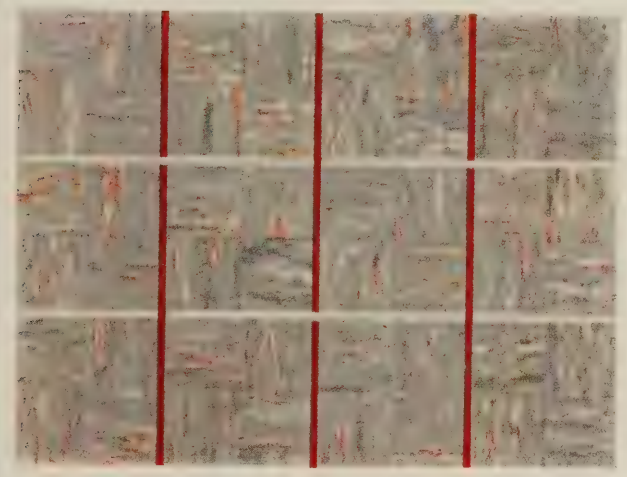
Armstrong RESILIENT TILE DESIGNS



Light Brown 25%, Medium Brown 50%,
Dark Brown 25%



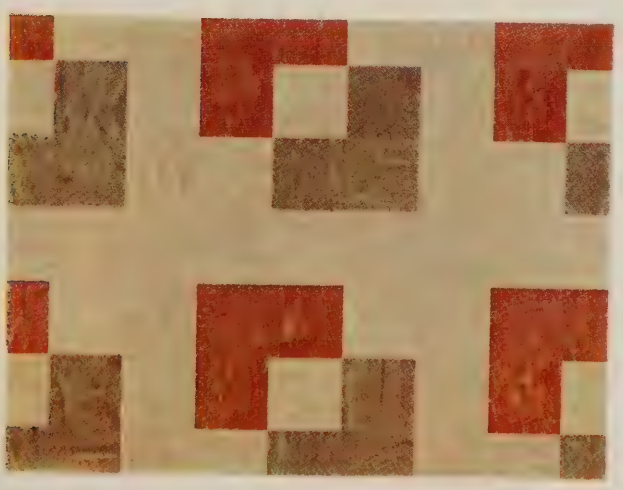
Red 50%, White 50%



Gray 87.6%, Feature Strips—Red 6.2%,
White 6.2%



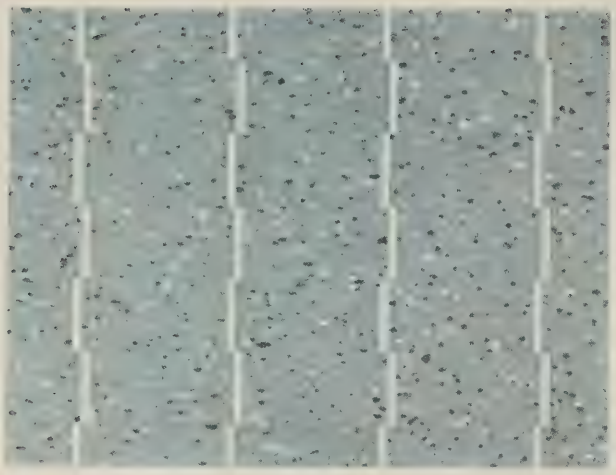
White 55.6%, Light Green 22.2%,
Dark Green 22.2%



Beige 62.5%, Tan 18.7%, Copper 18.7%



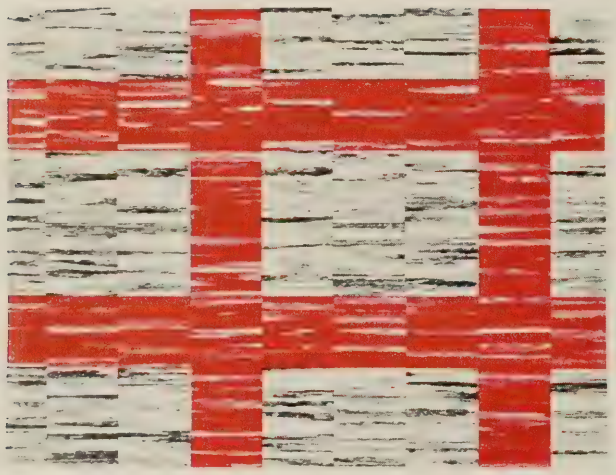
Gray 50%, Red 25%, Black 25%



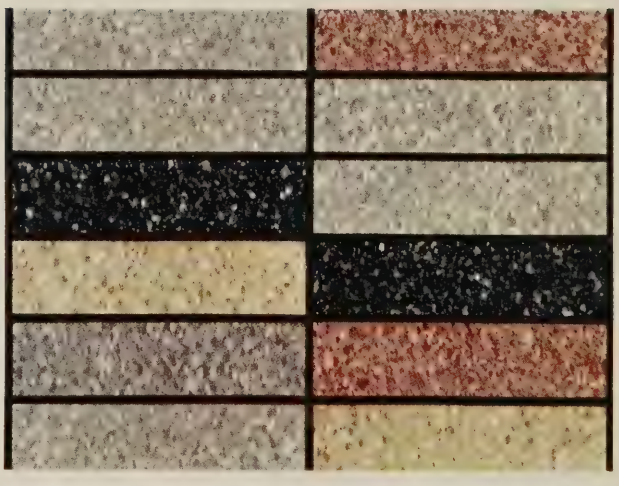
Field 90%, Feature Strip 10%



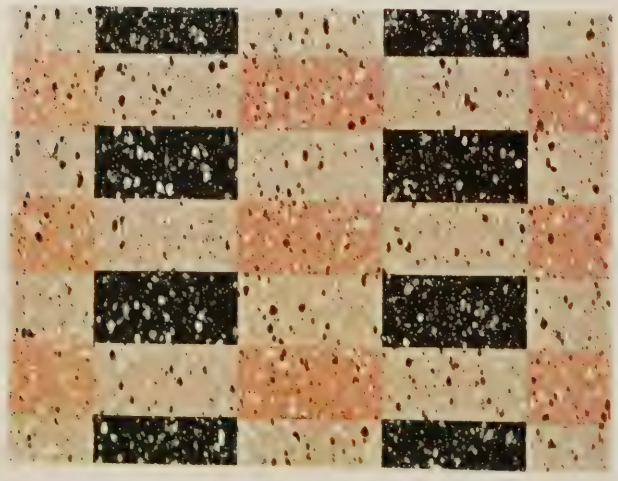
Beige 75%, Taupe 12.5%, Blue 12.5%



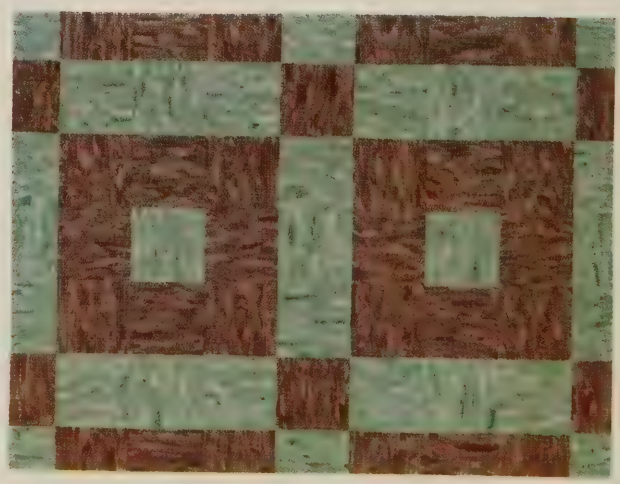
Red 50%, White 50%



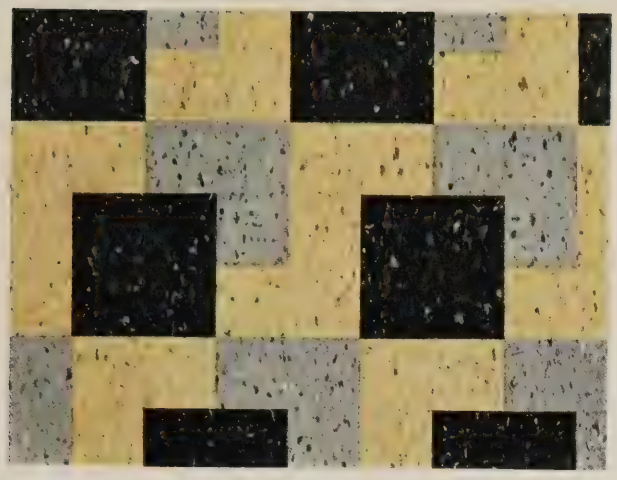
Random Field 90%, Feature Strip 10%



Taupe 50%, Black 25%, Salmon 25%



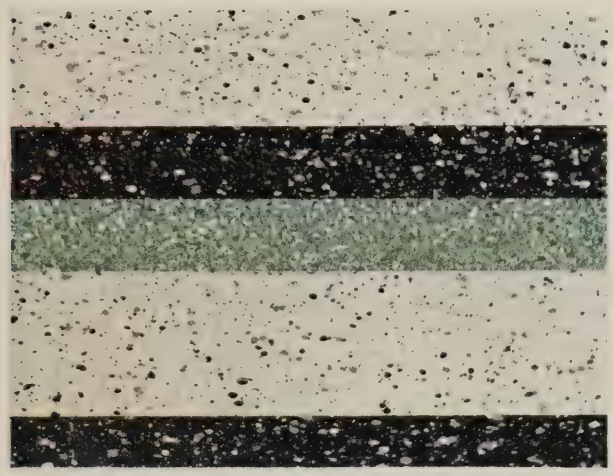
Taupe 56%, Green 44%



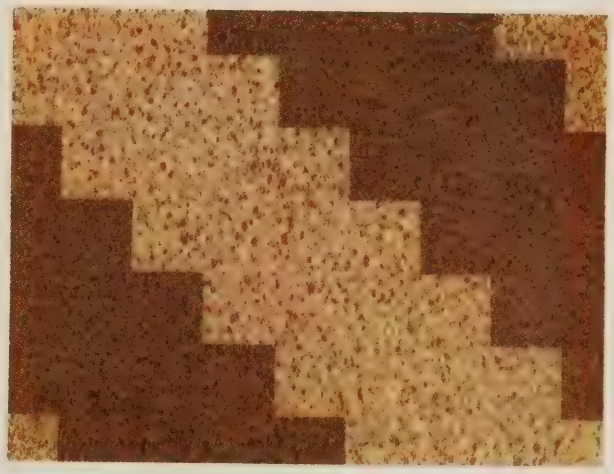
Tan 41.7%, Black 33.3%, Gray 25%



Gray 56%, Turquoise Blue 44%



White 50%, Black 25%, Green 25%



Tan 50%, Brown 50%



Beige 66.7%, Terra Cotta 33.3%



Gray 83.3%, White 16.7%

RESEARCH



STYLING



MANUFACTURIN



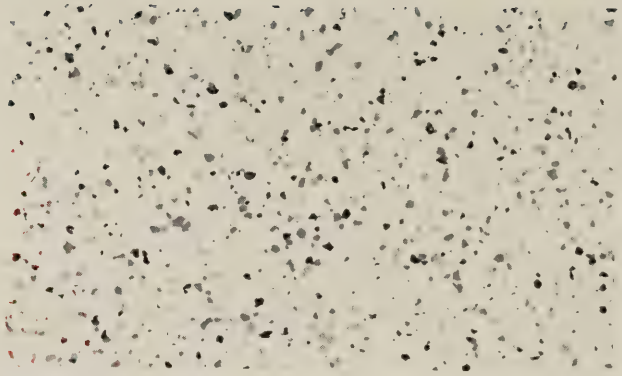
Armstrong

WALLS AND COUNTER TOPS

Armstrong Plastic Surfacing materials combine beauty with flexibility, durability, and ease of maintenance. They are made in roll form of varying widths to facilitate easy handling and installation with a minimum number of seams. Armstrong Vinyl Plastic Surfacing is also designed for use as a counter-top material. It can be easily installed around sharp edges and corners. Cork Tile and Custom Vinyl Cork Tile on page 130 can be applied to walls. Certain linoleum patterns, pages 64-99, and some Vinyl Corlon grades, pages 102-113, also have counter top application. For detailed information, consult your Armstrong Flooring Contractor or the nearest Armstrong Office.



8600 Red



8601 White and Black



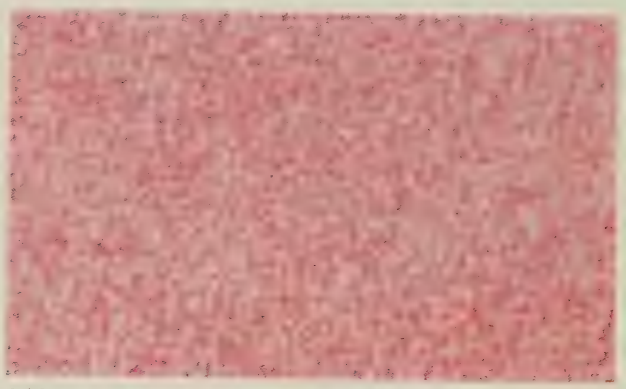
8602 Yellow



8603 Green



8604 Gray



8605 Pink



8606 Beige



8607 Blue

Armstrong VINYL PLASTIC SURFACING

30", 42", and 2 yards wide
Approximately 1/2 actual size

FOR YOUR CONVENIENCE. Use these post cards to obtain additional data or samples of Armstrong Floor, Wall, and Counter-Top materials

☐ Please send me quality samples of the following Armstrong products:

- ☐ Asphalt Tile
- ☐ Cork Tile
- ☐ Cushion-Eze Underlayment
- ☐ Custom Corlon Tile
- ☐ Custom Vinyl Cork Tile
- ☐ Excelon Tile
- ☐ Linoleum
- ☐ Linotile
- ☐ Opalesq Vinyl Tile
- ☐ Rubber Tile
- ☐ Vinyl Corlon
- ☐ Vinyl Plastic Surfacing

☐ Please get in touch with me at once. I have a specific problem that I would like to discuss with your representative.

Name

Firm

Address

City State

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- ☐ Custom Corlon Tile
- ☐ Custom Vinyl Cork Tile
- ☐ Excelon Tile
- ☐ Linoleum
- ☐ Linotile
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- ☐ Vinyl Plastic Surfacing

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Address

City State

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